Ministry of Water, Irrigation and Electricity

RURAL WATER SUPPLY OPERATION AND MAINTENANCE STRATEGIC FRAMEWORK

Document 01

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FOREWORD and ACKNOWLEDGEMENTS

Her Excellency, Mrs Frenesh Mekuria, State Minister of the Ministry of Water, Irrigation and Electricity

Ethiopia has made great achievements during the last 10 years i providing improved water supply service for its rural population. As a result, Ethiopia achieved the Millennium Development Goal (MDG) target in water supply. The target was achieved mainly through the implementation of small community water supplies. Today the number of these small community water supplies is well over 200,000 and serving a population of 50 million rural people. In order to keep these water supplies operational, the National Rural Water Supply (RWS) Operation and Maintenance Management (O&MM) Manual and Strategic Framework was prepared.

The National RWS O&MM Strategic Framework for Ethiopia is an outcome of collective efforts carried out through a consultative process across the nine regional states by the Federal and Regional Governments and Development Partners (DPs).

I wish to acknowledge the invaluable inputs of Ministry of Water, Irrigation and Electricity staff Regional Water Bureaus, Zone and Woreda Water Offices, Community-Led Accelerated WASH Project (COWASH), Water Action, Action Aid, JICA, World Bank, African Development Bank, DFID, UNICEF, Ethiopian Catholic Church Social & Development Coordination Office of Harar, Millennium WASH Alliance, Ethiopian WASH Alliance, all visited rural piped system Water Boards and Water Administration Offices (WAOs), numerous WASHCO members, user communities and several key individuals who gave freely their time, provided data and information and arranged scheme visits. Special thanks go to Demewoz Consultancy Company in the development of this document.

I would like to underscore the technical and financial support and extensive assistance we received from the Government of Finland financed COWASH project in this strategic framework and manual preparation.

I therefore request that all decision-makers, water technical stall at federal, region, zone, woreda, kebele and community levels secure budget for maintenance management and make sure that continuous improved water supply is provided to all Ethiopians. I believe that this manual will make it possible.

Providing rural water services is irreducibly complicated; there is no single solution for sustainability. Sustainable services rely on an interlocking network of different actors and institutions – all of which need to function at least well enough. Sustainable rural water supply means that whole system from regulation through provision of adequately resourced support services is ensured with accountability.

Addis Ababa in March 2018

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State Minister

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Strategic Framework for Operation and Maintenance of Rural Water Supply

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Acronyms

CBMS	Community Based Maintenance System
CMP	Community Managed Project
CSO	Civil Society Organization
DFID	Department for International Development (UK)
DAs	Development Agents
DPs	Development Partners
GIS	Geographical Information System
GTP	Growth and Transformation Plan
JICA	Japan International Cooperation Agency
HDW	Hand dug Well
HP	Hand Pump
ISM	Institutional Support Mechanism
LSP	Local Service Provider
MDG	Millennium Development Goal
M&E	Monitoring & Evaluation
MIS	Management Information System
MoANR	Ministry of Agriculture & Natural Resources
MoE	Ministry of Education
MoEFCC	Ministry of Environment, Forest & Climate Change
MFI	Micro Finance Institution
MoWIE	Ministry of Water, Irrigation & Electricity
NGO	Non-governmental Organization
NWI	National WASH Inventory
O&M	Operation & Maintenance
O&MM	Operation and Maintenance Management
OWNP	One WASH National Program
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PCS	Post Construction Support
RFE	Revolving Fund Enterprise
RPS	Rural Piped System
RWB	Rural Water Board
RWS	Rural Water Supply
SDM	Service Delivery Model
SP	Spare Part
TVET	Technical Vocational & Educational Training
UAP	Universal Access Plan
UNICEF	United Nations Children's Fund
WASH	Water Supply Sanitation and Hygiene

WAO	Water Administration Office
WASHCO	Water Supply Sanitation and Hygiene Committee
WB	World Bank
WIF	WASH Implementation Framework
WRSS	Water Resources Sector Strategy
WSS	Water Supply and Sanitation
WSSE	Water Supply Service Enterprise
WWO	Woreda Water Office
WWT	Woreda WASH Team

DEFINITIONS OF TERMS:

Accessibility	Is having a functional and reliable water supply facility without any barriers within a radius of 1000 metres from the user's household for Rural Water Supply
Access Coverage	Is the percentage of people with access to safe, adequate and reliable water supply within 1000m from their household at 25 litre/capita/day for rural community
Adequate Water	It is the quantity of water required to meet the minimum demand per capita per day. The standard being 25litre/capita/day by 2020 for rural people
Borehole Depth	The term "shallow" in Ethiopia is used to refer to a borehole up to about 60m in depth; "medium" depth refers to 60-150m; "deep" boreholes are drilled up to about 450m
Community	A group of households, hamlets or villages which are served by a common water supply facility whereby responsibility for maintenance, protection and expansion wholly or partially rests on the users.
Community Based Management	Is the process of empowering community members to assume the lead role in decision making about the levels of services they require, whilst organizing themselves to plan, implement, operate and maintain their water supply and sanitation facilities.
Community Management	Is a form of community participation in which the community takes the final decision on all aspects of planning, implementation, management, monitoring, evaluation, Operation and Management (O&M) of the water supply facility.
Community Owned	Ownership of water supply assets is transferred to legal entities established by communities (c.f. WASHCO) and the communities have full responsibility and accountability for the maintenance and protection of the assets.
Evaluation	Is the periodic and systematic review and analysis of a practice to determine the relevance, effectiveness, efficiency and impact of programmes/projects compared to the set objectives.
Functionality	The term functionality refers to the number or percentage of working/operational rural water supply schemes out of the total number of rural water supply schemes constructed at any given period.
Kebele/Tabia	Is the lowest administration unit in the Ethiopian government's administrational hierarchy
Maintenance	Refers to activities required to sustain the water supply facilities in a proper working condition. It includes preventive maintenance, corrective maintenance and crisis maintenance.
Monitoring	Is the regular and continuous checking of whether plans, activities and situations are being implemented as planned, and includes the provision of feedback to facilitate the taking of corrective measures by relevant stakeholders.
Operation	Deals with the actual running of the service (e.g. Provision of fuel, starting or handling of pumps, control of water collection points, general mechanical or water treatment procedures, hygienic handling, etc.
Point Water Supply	In rural water supply context, these are hand dug wells, shallow wells, on-spot springs types of schemes
Preventive Maintenance	Refers to an activity that includes checking the status of hand pump components at regular fixed intervals

Rehabilitation	Is the correction of major defects and the replacement of equipment to enable the facility to function as originally intended?
Reliable Water Supply	Is the supply of water on a continuous basis meeting the minimum demand per capita per day?
Repair	It is the restoration of a defective component to return the facility to acceptable working condition. The cost of the repair should be borne by the community.
Rural Area	"Areas of population outside urban and peri-urban using point or surface water sources for which the community is responsible for the O&M". In addition, low population densities characterize rural areas, with small houses isolated from each other.
Rural Piped System	It is a water supply system feeding various villages and small towns by gravity, pumping and a combination system through public taps and yard connections.
Safe water	Is water that is free from harmful quantities of physical, chemical and pathogenic matter and that meets the minimum Ethiopian standards (usually WHO Guidelines).
Seed Money	Is the initial sum of money disbursed to an organization in order to create/start a revolving fund for undertaking a designated programme.
Scheme (Water)	The entire facility (concrete works, pipes, pumps) established to extract water from a water source, and distribute it to (close to) people's homes.
Sustainable Supply Chain	Is a system of procuring and supplying spare parts (SPs) that guarantees a continuous supply of spare parts?
Source (Water)	The natural water source only, i.e. spring, groundwater, river, etc.
Supply chains	Is the term used for the process that relates all activities involved with the flow and transformation of goods from the raw materials stage through to the end-user, as well as the associated information flows?
Water Extension Workers	Are technical personnel's who provides rural communities with technical advice of rural water supply facilities to improve functionality of the system and develops their abilities to ensure the sustainability also in the future.
WASHCO	It is a committee of community representatives elected by the community to the Water, Sanitation and Hygiene Committee to manage the operation and maintenance of the water supply.
Water User's Association	A legal entity established by the users of water resources within a specified area to manage the allocation of water resources and resolve conflicts amongst water users within that area.
Woreda	It is the lowest administration unit next to/higher than kebele), in the Ethiopian government's administrational hierarchy.

Executive Summary

Introduction

This National Rural Water Supply Operation and Maintenance Management Strategic Framework for Ethiopia has been developed by the Ministry of Water, Irrigation and Electricity (MoWIE) with the technical and financial support from Development Partners.

This Strategic Framework is designed to assist the Woredas to determine the most appropriate support, follow-up and monitoring systems for the Country. This is done in order to ensure that the rural water supply systems are well operated and maintained by the communities as well as support and guidance to ensure the long-term sustainability of the existing water supply schemes.

This framework has been developed based on the findings of the situational assessment on operation and maintenance constraints and challenges of rural water supply schemes. To implement this framework, various manuals and guidelines have been developed in parallel.

The Strategic Framework takes into account the four fundamental principles that were identified during the situational assessment conducted by this consultant prior to developing this strategic framework.

1. Community members are primarily responsible for day-to-day operations and maintenance (O&M) and scheme management activities through their representatives in Water Supply Sanitation and Hygiene Committee (WASHCO)/Rural Water Board.
2. Communities must be strengthened and empowered to meet their responsibilities through the formation and development of a recognized structure and legal personality.
3. In addition to an increased role for the community, there is also a need for external institutional support to sustainably maintain water scheme for their design period and even beyond that.
4. The regional water bureau and its subordinates shall play a role that goes beyond direct intervention to encompass monitoring of systems, coordination and facilitation of the activities of other key organizations, and provision of reliable information and advice for communities.

Development of this Rural Water Supply (RWS) O&MM strategic framework involved the consideration of key characteristics of the rural water supply and sanitation sector, including institutional trends and constraints. In order to make this developed RWS O&MM Strategic Framework implementable these trends and constraints shall have to be seriously addressed and solved.

Objectives

The overall objective of this Strategic Framework is to ensure that rural communities and small towns gain sustained access to potable water supply from existing water supply facilities through the use of appropriate operations and maintenance management practices.

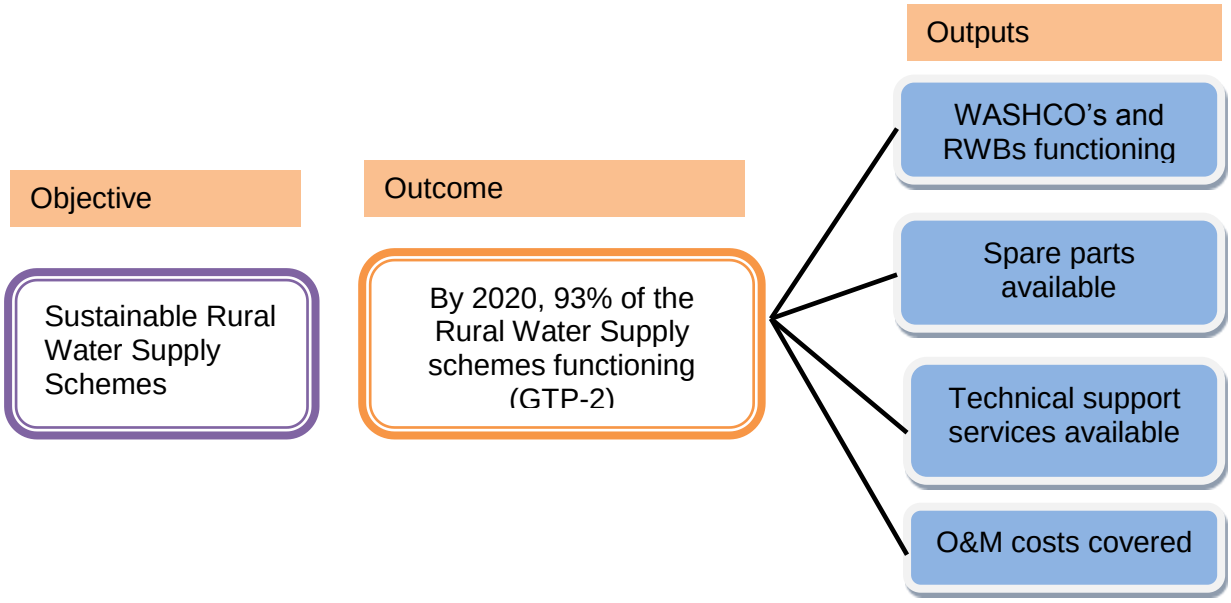
The key goal of this framework is therefore to provide guidance and policy direction for streamlining O&M in daily operations at all levels within the sector, to ensure long term sustainability of facilities and enjoyment of intended benefits. It shall form the basis for planning, implementation and monitoring of O&M to be used by all sector actors, including government and development partners.

The Framework shall also raise awareness on the need to plan and balance O&M issues with investments in new facilities at an early stage.

This Framework points out the key strategic areas that need to be tackled within specific O&M management as well as major crosscutting issues for the whole sector. It provides direction for the overall (and sub-) sector development and prioritizes in view of the limited resources available.

The objective, outcome and outputs of the rural water supply operation and maintenance management based on the Ethiopian Growth and Transformation Plan 2 (GTP-2) outcome are shown in figure below.

Figure 1: Rural Water Supply Operation and Maintenance Management Objective, Outcome and Outputs based on GTP-2



Scope and Purpose

This Strategic Framework is developed for rural water supply service and focuses on the operation and maintenance issues.

Its scope is to provide strategic directions for the implementation of the operation and maintenance management through further development of manuals and guidelines.

The purpose of this Strategic Framework is to operationalize the Water Resources Management Policy and ensure its implementation through effective and technically sound strategic approaches, improved O&M management, improved capacity and involvement of all stakeholders.

Situational Analysis of O&M in Ethiopia

Before decentralization policy came into effect in Ethiopia, O&M activities were conducted from the branch (*ketena*) Water Supply and Sewerage Authority (WASSA) with mobile workshop. This system did not involve user communities to a large scale. Such system could not ensure the ownership of the community and was found ineffective. The problem with the system was that it did not reach to the community when needed because the crew deployed from their branch office was far from the community.

Furthermore, the O&M management section/department has not been in placed in the organizational structure of the MoWIE, which would have been supposed to be there since it is one of the key instruments to execute the water resources management policy as well as strategy. Actually MoWIE is not expected to carry out O&M activities at the scheme level,

but it should conduct follow up and develop O&M implementation since it is linked with the functionality as well as access coverage of the water supply.

In Ethiopia today, the O&M of Rural Water Supply Facilities (RWSF) is largely based on the Community Based Scheme Management (CBSM), which emphasizes community responsibility and authority over the development, operation and maintenance of their water supply facilities. The concept of CBSM was first introduced in Ethiopia in 1994 since decentralization proclamation was issued. It was from the outset envisaged that an effective CBSM builds on community ownership and community responsibility for O&M of installed water supply facilities, with support from various other actors. This would ensure long term operational sustainability. Since then, CBSM has been adopted and implemented by all rural water supply projects. CBSM is formalized through the National Water Policy as a sustainable model for maintenance of installed rural water supply systems. However there are still a number of shortcomings with the O&M management of water supply facilities.

The average national non-functionality of the rural water supply schemes, according to the National Water Supply Sanitation and Hygiene (WASH) Inventory (2011) was 25.5%. It varied between 20% and 35% region to region. The reasons for non-functionality are numerous and have a lot to do with insufficient attention to software issues and short project delivery time-frames which do not allow time for training and follow up post implementation. By July 2015 the GTP 2 baseline for national non-functionality is 15.5%.

A lack of effective spare parts supply chain in the country as a whole limits the government authorities and community structures to maintain schemes. This constraint is not only a technical problem but it leads also to the problem of financing of the maintenance as the price of the spare parts becomes high when purchased from far away suppliers.

The non-functionality root causes learnt during the assessment are many. To mention some of them are: study and design problem, the season for digging of a well, poor construction quality and workmanship, poor quality of materials installed, misuse of the schemes, climate change impacts such as drought and flooding, the unavailability and expensive spare parts due to absence of proper spare part supply chain, lack of institutional support etc.

The implementers are mainly focused only in construction of new schemes rather than putting energy and attention into ensuring long term sustainability, that is community-led operation and maintenance management. All organizations should therefore look back their implementation processes in order to resolve problems that have emerged in schemes they have been involved in the past.

These situations demanded the formulation of this strategic framework of O&M management as part of Ethiopia's Water Resources Management Policy.

Policy, Strategy and Guidelines

The Ministry of Water, Irrigation and Electricity (MoWIE) has formulated policies, proclamations and strategies such as National Water Resource Management Policy, Water Sector Strategy (2000), Water Sector Development Program (2002), Water and Sanitation Access Plan (UAP I, 2005 and UAP II, 2012), Memorandum of Understanding signed by three sector ministries (MoU, 2006) and a revised Memorandum of Understanding (MoU), signed by four sector ministries in November 2012.

MoWIE has also prepared various guidelines for the implementation of the policy, such as WASH Implementation Framework, One WASH National Program Document and others.

Regional water bureaus have issued proclamations, directives and regulations to exercise the water policy. All regional water bureaus have issued proclamations to establish the urban and rural water supply and sanitation services but only few have issued the directives and regulations to implement these proclamation. The issue of the RWS ownership and legal personality are not elaborated properly in these proclamations.

The Water Resources Management Policy (WRMP)is clearly stating the issue of i) ownership of the schemes, ii) O&M support, iii) tariff, iv) gender, v) capacity building and vi) private sector involvement.

O&M Strategic Directions

MoWIE and/or Regional Water Bureaus recognise the direct links between improved operation and maintenance practices, the effectiveness and sustainability of water supply and sanitation services.

Ethiopian Government has also recognised that O&M should not be viewed only from technological or operational perspective but it should take into account also management, financial and social aspects associated with overall performance of water supply services. Therefore the Government of Ethiopia has committed to introduce and upscale sound community-led rural water supply operation and maintenance practices where systems and procedures are consistent to achieve sustainability in rural water supply service provision.

In order to alleviate the challenges listed in chapter 3 of this document, a clear strategic framework is needed to be developed for the sound operation and maintenance management of rural water supply schemes.

The strategy to achieve the objective is derived from three working principles:

- Consolidate community ownership and management of water supply services through adequate monitoring and back-up support from the Woreda and enhance maintenance and repair services by delegating critical O&M aspects to the local private sector service providers;
- Communities should bear the full costs of O&M through the setting, collection and management of appropriate water tariffs;
- The business of spare parts is currently not viable on its own. The establishment of the revolving fund office/enterprises and involvement of private sector should be supported with measures that reduce transaction costs in the provision and availability of spare parts.

The strategy for achieving the objective is the adoption of the following directions:

- **Improving O&M practices** through the development and adoption of appropriate technical and human resource development measures that would strengthen (and fill the gaps and shortfalls) of existing operations and maintenance systems;
- **Improving funds mobilization to cover O&M** through the adoption of rational tariff setting methods, revenue collection and prudent financial management;
- **Strengthening supply chains** for spare parts and related goods and services to sustain O&M of water supply systems through the adoption of demand, supply and regulatory support measures; and
- **Reinforcing capacity for on-going institutional support** for the management of community water supply services through targeted capacity building and training.

There are various enabling situations to implement this strategic framework for O&M management. Some of these enabling situations are the Growth and Transformation Plan – 2 (2015-2020) and One WASH National Program II (2015-2019). GTP 2 plan contains the following targets in relation to rural water supply.

- Meet universal access in water supply based on GTP I standard in all regions.
- Achieve 85 % access to rural water supply with GTP II standard. From this 20 % is provided through rural piped schemes.
- Decrease rural water supply schemes non-functionality rate from 15.5% to 7%.

- Strengthen rural water supply community management through legalization of all WASHCOs.
- Empower Women in WASHCO management including decision making and increase their membership in WASHCO to 50% and more.
- Establish supply chain for low cost water supply technologies and spare parts.
- Establish water supply extension support system at kebele level to enhance implementation of household and communal level self-supply system and improve O&M of rural water supply schemes.
- Ensure rural water safety through rural water supply water quality monitoring system and water safety planning implementation.
- Train and engage into the sub-sector 4,500 higher and 13,000 medium level professionals and 510,000 artisans and caretakers and ensure that involvement of women in this regard is 25% and more.
- Establish independent water supply and wastewater service regulatory agency to ensure high quality of service delivery.
- Increase the involvement of the private sector in the water supply activities particularly in O&M of urban water supply utilities.
- Implement National ICT based Monitoring & Evaluation(M&E) and Management Information System (MIS) for the subsector

In order to cope up with all constraints & challenges, and utilizing the opportunities, the following 13 Strategic Directions have been set:

1. Issue/amend the needed proclamations, regulations and directives for organizing and establishment of rural water supply & sanitation service, legalization of WASHCOs and Rural Water Boards,
2. Raise the profile of operation and maintenance management in WASH sector priorities,
3. Distinguish the cost recovery mechanism among different stakeholders and ensure the cost recovery in the community based financial management through three options,
    - Government and Development Partners support only
    - Cost sharing by Government & Development Partners and Community
    - Community only
4. Ensure sustainable spare part supply & management through establishment of either,
    - Revolving Fund Enterprise (RFE),
    - Water Supply Service Enterprise (WSSE)
    - Private Sectors (Micro and Small Enterprises (MSEs)/Associations)

    Selecting whichever, the model needs to be feasible and appropriate to the local context of regions.
5. Reinforce and establish appropriate institutional O&M support mechanisms,
6. Develop and utilize appropriate norms, criteria and design for rural water supply facilities,
7. Ensure Sustainable O&M Service Delivery,
8. Planning and implementation of preventive maintenance of the water supply schemes,

9. Shift the traditional approach of O&M to modern approach of water safety planning from the remote catchment to the end users management by involving various relevant stakeholders and link it to the water quality management through source protection, monitoring, surveillance and testing,
10. Build professionals capacity at all levels through the provision of training, equipment, tools and materials,
11. Establish and strengthen of M&E, MIS and reporting system of O&M management,
12. Incorporate O&M Management in to Technical Vocational & Educational Training (TVET) Curriculum,
13. Identify and provide financial resources for the implementation of the above 12 strategic directions.

For these strategic directions, objectives and related implementation plan, detailed action plan is to be developed by all stakeholders.

Currently over 200,000 different types of rural water supply schemes exist in the Country. This number will increase much in the next few years. The age of existing schemes vary from newly constructed to over 30 years. All these schemes need to be given attention to serve to their design period and even beyond. This strategic framework is mandatory to effectively implement the rural water supply operation and maintenance management system.

On top of that, this strategic framework will contribute to reduce the non-functionality rate of RWS schemes from the GTP 2 baseline of 15.5 % to 7 %. Furthermore, the non-functionality rate has direct implication on the water supply coverage which is increasing or decreasing depending on the application of proper O&M management.

Planning for Operation and Maintenance

Inadequate O&M planning can significantly affect the success of an effective CBSM. Key O&M aspects need to be defined right from the identification stage through the implementation phases. In order to ensure that O&M aspects are streamlined in all stages of operational management, it is important that preventive maintenance activities are planned for.

Operation and maintenance planning is required at early stage of pre-construction, during construction and post construction. Each phase have their own characteristics and activities as explained in chapter 5. This chapter is explaining the different ways of how to prepare action plan at different stages. To do this, baseline data including SWOT analysis is very important. Log fame, transforming problems in to solutions, narrative proposals and work plan preparation are described.

Process of preparation of work plan and the corresponding budget plan, procedures of approval are briefed in chapter 5.

1 INTRODUCTION

1.1 Background

The Ministry of Water, Irrigation and Electricity (MoWIE) is mandated to address all water related functions in collaboration with the Regional States. MoWIE leads development of policies, strategies, guidelines, regulations and standards; in addition to coordinating external support. Thus, MoWIE is to ensure coordinated development and management of water resources on one hand, and provision and sustainability of water and sanitation services on the other hand.

In line with the decentralization as provided for the administration of Federal system in 1992, MoWIE led the development of a Water Sector Policy in a participatory manner that ensures inputs from various stakeholders. Approved in 1999, the Policy outlined how the sector will evolve, including establishment of broad sub-sector, i.e. water supply and sanitation for both rural and urban components.

The Water Resources Management Policy and Water Sector Strategy set out key aspects of the operation and maintenance of water supply system. In order to implement the policy and strategy, strategic framework for O&M was supposed to be developed but its development has delayed. This strategic framework provides guidance for the proper operationalization of operation and maintenance management of the rural water supply systems to ensure the sustainable use of schemes as well as the reduction in the rate of non-functionality within the time frame and targets of second Growth and Transformation Plan (GTP – II).

This strategic framework paves the way from ad-hoc operations to well-planned and well-targeted O&M management in all implementation modalities incorporated in One WASH National Program (OWNP). Hence, it guides the sector towards achieving the GTP – II and contributes to the overall socio-economic development of the Country.

With this strategic framework, MoWIE, key rural water supply sector stakeholders and Development Partners have initiated an inclusive sector wide governance and development process. It will enable them to: identify sources, mobilize resources for post construction support by addressing priority interventions, leading towards sustainable, equitable and publicly accountable response to water related public health and livelihoods' aspirations in Ethiopia.

Once the strategy has been agreed upon by all stakeholders, it is necessary to develop an action plan detailing how it will be introduced and implemented. This is likely to be an incremental process and the action plan should include a detailed time scale, with clear allocation of roles, responsibilities and resources. It should also identify relevant legislative and regulatory issues which will need to be addressed in implementing the strategy. Provision should be made for ongoing WASH monitoring and performance measurement to determine future demand for change on O&M management, so that the process can be properly monitored, documented and repeated when required.

1.2 O&M Vision

"Efficient and sustainable provision of spare parts and operation & maintenance of rural water supply schemes for the delivery of reliable, potable and affordable water supply to the community."

1.3 O&M Mission

"Creating an enabling environment for promoting supply chain and regular maintenance system that leads to the reduction of the non-functionality rate of the schemes to ensure sustainability"

1.4 Slogan

"Thinking O&M Management in parallel with construction of new schemes", which leads to reduction on non-functionality through sustainable use of schemes.

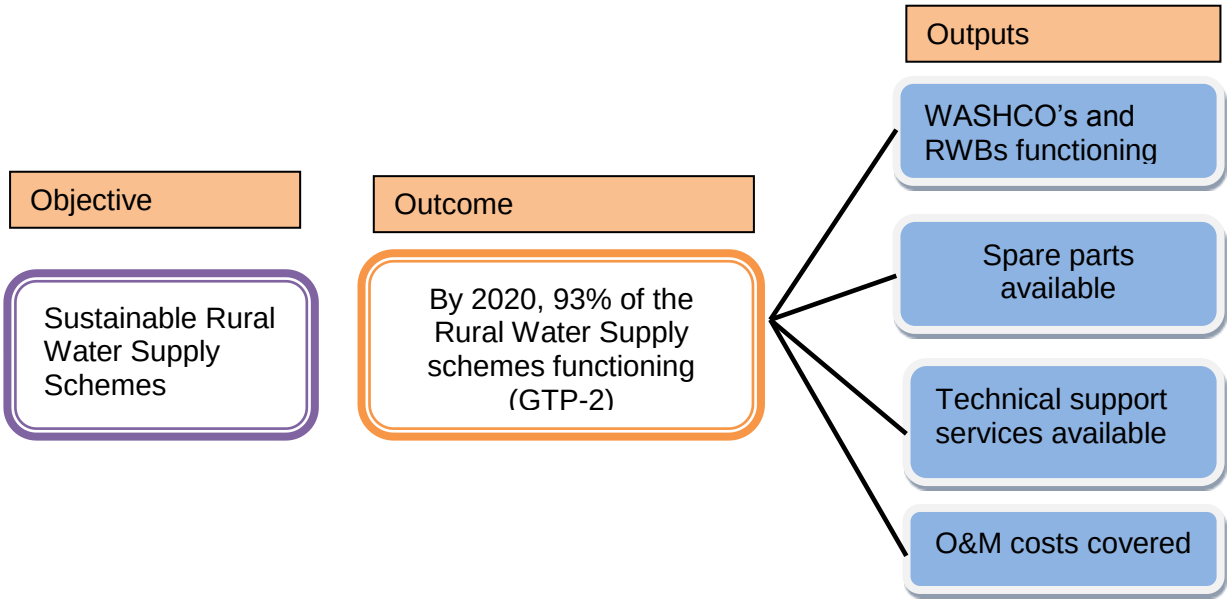
1.5 Strategic Goals

The overall goal of the strategic framework is to indicate the directions for the improvement and sustainability of rural water supply services through the implementation of O&M management, reduction of the non-functionality rate of the schemes and involvement of private sector. In achieving the goals, the O&M management would contribute to poverty reduction through increased access to WS&S services.

1.6 Objectives and Relevance of the O&M Framework

Figure 2describes the main objective of these strategic directions in terms of objective outcome and outputs.

Figure 2: Objective, Outcome and Outputs of Strategic Directions



The overall objective is to ensure that rural communities and small towns gain sustained access to potable water supply from existing water supply facilities through the use of appropriate operations and maintenance management practices.

Significant construction progress has been registered during the development of this national O&M strategic framework for rural water supply schemes. However, if these gains in increasing safe water supply access-coverage are to be consolidated, it is important that the issues of sustainable use and maintenance of the facilities developed are also appropriately addressed.

The low functionality of water supply facilities impacts negatively to the government commitment to increase access-coverage. It is important that more concrete attempts are made to address this situation. The key goal of this Strategic Framework is therefore to provide guidance and policy direction for streamlining O&M in daily operations at all levels within the sector, to ensure long term sustainability of facilities and enjoyment of intended benefits. It shall form the basis for planning, implementation and monitoring of O&M to be used by all sector actors, including government and development partners.

The Framework shall also serve to raise awareness on the need to plan and balance O&M issues with investments in new facilities at an early stage.

This O&M Framework reviews O&M findings arising from the assessments and other observations, and proposes approaches towards their solution. It aims to streamline and strengthen O&M aspects in the planning and implementation of water supply activities by all sector players. It attempts to address the concerns and approaches from different perspectives, so that the various sector players can identify and address the area most suitable to their specific requirements.

The O&M Framework is to be used alongside other sector documentation and implementation guidelines. In addition detailed materials are due to be produced for training and other extension work on rural water supply O&M management.

1.7 Role of O&M Strategic Framework

The O&M strategy:

(i) Provides direction for service provision functions aimed at improving operation and maintenance by identifying the challenges/issues behind the low rural water supply coverage and high levels non-functionality and analysing underlying causes of poor performance.

(ii) Recommends strategies, solutions and interventions to address the challenges on priority basis by identifying quick wins and based on an overall implementation action plan.

(iii) Presents a matrix identifying key result areas, roles and responsibilities of each actor at all levels.

(iv) Outlines a template for regions and woredas to identify the activities to be carried out for each intervention with the corresponding time scale and budgets.

1.8 Scope and Purpose

This strategic framework is developed for rural water supply service and focuses on the operation and maintenance.

Its scope is to provide strategic directions for the implementation of the operation and maintenance management through further development of manuals and guidelines. The scope includes Community Based Scheme and Financial Management, Supply Chain, Support from the Government, Private – Public – Partnership, Monitoring, Evaluation and Reporting, Roles & responsibilities of stakeholders with a time frame of GTP-II.

The purpose of this strategic framework is to operationalize the Water Resources Management Policy and ensure its implementation through effective and technically sound strategic approaches, improved O&M management at all levels, improved capacity and involvement of all stakeholders. This framework points out the key strategic areas that need to be tackled within specific O&M management.

It provides direction for the overall (and sub-) sector development and prioritizes in view of the limited resources available. However, O&M management action plans defining annual targets and scheduled specific activities are yet to be developed.

1.9 Principles that guide the strategy

The main principles guiding this strategy are:

(i) To focus on service delivery rather than just construction of facilities,

(ii) To attain sustainable financing by ensuring effective mechanisms for resource mobilization for operation and maintenance.

(iii) To promote participation and community management by all stakeholders and user communities, particularly women, in sustaining service delivery.

(iv) To facilitate collaboration and networking among stakeholders (politicians, resource persons, civil societies, DPs and Non-Governmental Organizations (NGOs)).

(v) To provide institutional, individual and community support services at all levels.

(vi) To promote good governance in the operation and management of water supply services.

(vii) To enforce the implementation of environmental water source protection and environmental conservation policies, acts, strategies, regulations, guidelines and laws.

1.10 Operation and Maintenance

Operation refers to the everyday running and handling of water supply facilities, involving the actual delivery of services. It involves:

- Major operations required to convey safe drinking water to users; and
- Correct handling of facilities by users to ensure long component life.

The proper operation of a water supply facility results in its optimum use and contributes to a reduction in breakdowns and maintenance needs.

Maintenance refers to the activities aimed at sustaining the water supply in a proper working condition. It can be divided into:

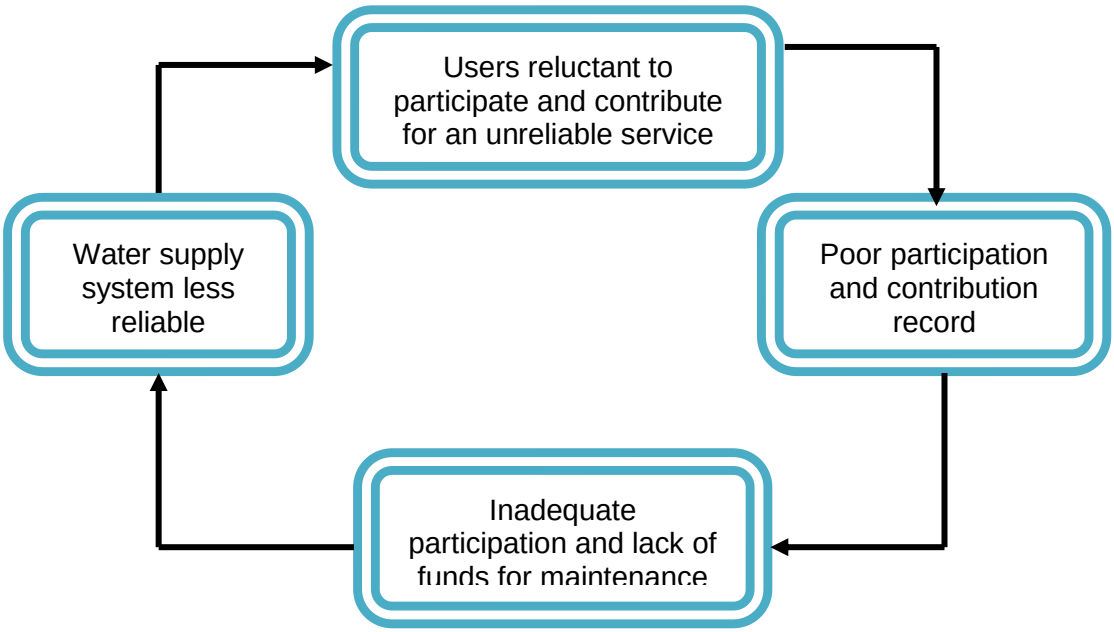
- Preventive maintenance – regular inspection and servicing to preserve assets and minimize breakdowns;
- Corrective maintenance – minor repair and replacement of broken and worn out parts to sustain reliable facilities; and
- Repair (crisis maintenance) –responses to emergency breakdowns and user complaints to restore a failed supply.

Operation and maintenance (O&M) is therefore the sum total of activities required to achieve smooth running and continuous sustenance of a water facility to ensure long service. The main potential benefits to a community of sustainable O&M are numerous, and include:

- Reduced time in water collection leading to increased time for more economically gainful activities for improved well-being of the family;
- Improved health when combined with good hygiene practices to reduce disease morbidity and expenditures on health; and
- Less dependence on external organizations that often have limited resources.

The close linkages between cost recovery and sustainable O&M are characterized by the vicious circle shown in Figure 3 (below). Considerable effort is required from all stakeholders to break the vicious circle and ensure proper O&M of communal water facilities.

Figure 3: The Vicious Circle of Underfunded and Poorly Maintained Water Supplies



Source: National Strategy of WSS of Uganda

Generally O&M of community water facilities is poor due to a number of complex reasons including:

- Low priority given by respective institutions who are more interested in constructing new facilities, which they perceive as having a more dramatic impact;
- Poor cost recovery and low revenues leading to a lack of financial resources for O&M;
- Inadequate staffing, which may result from the relatively low status of O&M compared with construction activities; and
- Lack of appropriate and refreshing capacity building for the key stakeholders (e.g. WASHCO's, Woreda Water Offices etc.).

1.11 Situational Analysis of O&M in Ethiopia

Before decentralization was applied in Ethiopia O&M activities were conducted from the branch (ketena) Water Supply and Sewerage Authority (WASSA) with mobile workshop. The system was only to some extent participatory. Such system could not ensure the ownership of the community and was found ineffective. Main problem with the system was that, it did not reach to the community when needed because the crew deployed from the branch office was far from the community.

The O&M management section/department has not been in place in the structure of the MoWIE although it is supposed to be one of the key instruments to execute the water resources management policy as well as strategy. In fact the MoWIE is not expected to carry out the O&M activities, but should carry out follow up of its implementation and provide guidance in O&M since it is linked with the functionality as well as access coverage of the water supply.

In Ethiopia today, the O&M of Rural Water Supply Facilities (RWSF) is largely based on the Community Based Scheme Management (CBSM), which emphasizes community's responsibility and authority over the development, operation and maintenance of their own facilities. The concept of CBSM was first introduced in Ethiopia in 1994 when the decentralization proclamation was issued. However, despite such legal frameworks, the decentralization of O&M had not been translated into action due to several reasons. It was from the outset envisaged that an effective CBSM builds on community ownership and community responsibility for O&M of installed water supply facilities and with support from

various other actors, would ensure a long term operational sustainability of the RWSF. Since then, CBSM has been adopted and implemented by all rural water supply projects. CBSM is formalized through the National Water Policy as a sustainable system for maintenance of installed rural water supply systems. However there are still a number of shortcomings with the O&M of RWSFs.

The average national level non-functionality of the rural water supply schemes, according to the National WASH Inventory (2011) was in the order of magnitude of 25.5%. It varied between 20% and 35% region to region as presented in Figure 4 below. The Afar region had maximum non-functionality rate of 34.1% (2011) and followed by Tigray region with 32.9% (2011). The minimum non-functionality rate was for Amhara region, 20.4% (2011). The reasons for non-functionality are numerous and have a lot to do with insufficient attention to lack of O&M support financing and short project delivery time-frames which do not allow time for training and follow up of post implementation.

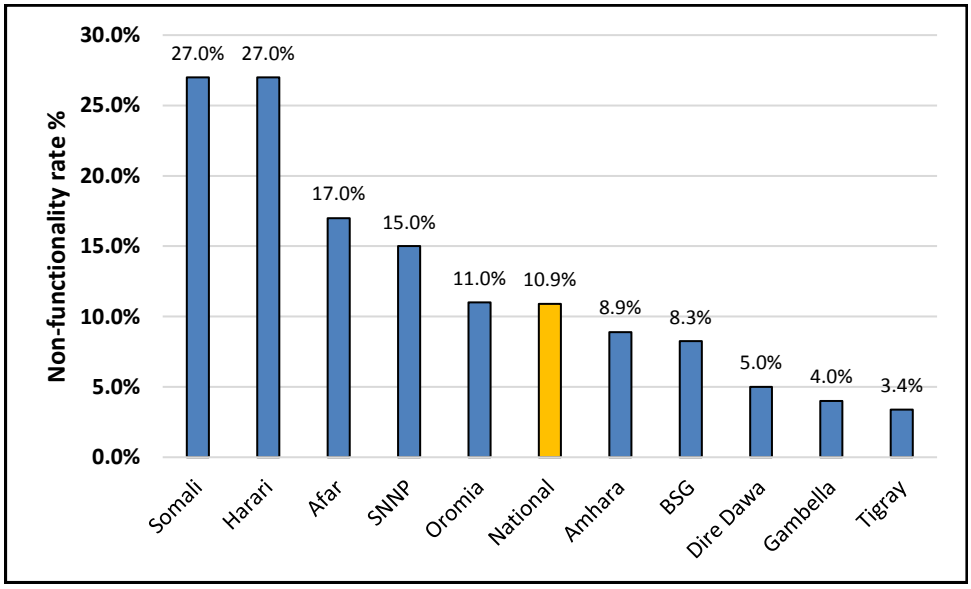
A lack of effective spare part supply chain processes in the Country as a whole, limits to the authority and abilities of community structures to maintain schemes - both in terms of addressing technical problems as well as regular financial contribution.

The non-functionality root causes made with various regional water bureaus are many. To mention some are the study and design problem, the season for digging of a well, poor construction quality and workmanship, poor quality of materials installed, misuse of the schemes, climate change related impacts such as flooding and drought, the unavailability & expensiveness of spare parts, absence of proper supply chain etc.

The implementers mainly focus in constructing of new schemes rather than putting energy and attention into ensuring long term sustainability, that is Operation and Maintenance Management where community is a focal point. All organizations should therefore look back of their processes to resolve problems that have emerged in schemes that they have been involved in the past.

As of July, 2017, an estimate of over 200,000 different types of rural water supply schemes exist in the Country, even this number will increase much in the next few years. The existing schemes have different ages from over 30 years to recently constructed schemes. There is a need to ensure that the schemes serve at least their design period and even beyond. Therefore the requirement of this strategic framework is a mandatory.

Figure 4: Non-Functionality of Water Supply Schemes by Region (2017/2009 EFY; One WASH Annual report)



1.12 The Strategic Framework

The strategic framework includes the development and implementation of the strategy for the operation and maintenance of rural water supply systems. The framework comprise constraints and issues that impact on the effective and efficient operation and maintenance of water supply and the strategic actions that are required to improve operation and maintenance. The framework also contains proposed policy issues and skill requirements that are necessary pre-requisites for implementing the strategic actions proposed. The discussions leading to the development of the framework deepens on the understanding among participants of water supply operations and maintenance issues and the strategic orientation to address the issues.

Layout of the Strategic Framework

Chapter one: contains background with the concept, objective, mission, vision, goals, purpose, roles, principles and County's O&M situation for this strategy.

Chapter two: describes the legal and regulatory framework by showing the inter link between proclamation, strategy and guidelines in relation to operation and maintenance of rural water supply system.

Chapter three: presents challenges in operation and maintenance of rural water supply schemes with regard to ownership, technology choice, spare part, supporting mechanism, financial contribution and management, capacity building and water quality management aspects. This chapter helps to fix the problems and develop strategic direction to cope up the problems identified.

Chapter Four: outlines a core matrix of strategic themes with challenges, strategies to overcome the challenges, activities to address the challenges. Thirteen (13) strategic directions are briefed in this chapter.

Chapter Five: shows planning requirements for operation and maintenance, which are described in various phases of the project cycle.

2 POLICY AND STRATEGY FRAMEWORK

2.1 General

The Ministry of Water, Irrigation and Electricity (MoWIE) has formulated policies, legislation and strategies such as National Water Resource Management Policy, Water Sector Strategy (2000), Water Sector Development Program (2002), Water and Sanitation Access Plan (UAP) (2005 and 2012), WASH Memorandum of Understanding signed by three sector ministers (MoU, 2006) and a revised WASH MoU, signed by four sector ministers in November 2012. MoWIE has also prepared guidelines for gender mainstreaming in the water and energy sectors (2012).

2.2 Water Resources Management Policy

The then Ministry of Water Resources issued the Water Resources Management Policy (WRMP) in 1999, formulated a Water Resources Sector Strategy (WRSS) and drew up a 15-year Water Sector Development Program (WSDP) in 2001. The WRMP considers water as a social and economic good. The principle of cost recovery, decentralized management, sustainability of water supply, capacity building and research &development (R&D) are incorporated as the most important concepts in the policy. The Ethiopian Water Sector Strategy acts as a road map to translate the policy into action. The Ethiopian Water Resources Management policy, as well as the strategy, promote the principles of integrated water resources development and management, and accelerate the water supply and sanitation coverage.

Policy aspects related to RWS Ownership and O&M

Many issues of rural water supply ownership and operation & maintenance concerns are addressed in the national WRMP. This policy indicated the need to budgeting by the external as well as government to ensure the reliability of the O&M management as indicated in Table 1, item 2.

Summary of the ownership and O&M aspects of the policy are presented below in Table 1.

Table 1: Aspect on Ownership and O&M in the WRMP

Policy components/Aspects	RWS-O&M issues reflected in the existing Water Policy
1. Ownership of schemes	▪ Create and promote a sense of awareness in communities of the ownership and their responsibilities for O&M of water supply systems and develop participatory management practices ▪ Ensure that the system of ownership of water supply systems recognizes the local objective realities on the ground, and involvement of the users and other stakeholders, as well as be based on conducive conditions for sustainable management ▪ Provide the legal basis for active and meaningful participation of all stakeholders, including water users' associations, the community and particularly for women to play the central role in water resources management activities

Policy components/Aspects	RWS-O&M issues reflected in the existing Water Policy
2. Operation and Maintenance support issues	▪ Promote the establishment of **integrated O&M framework** that provides reliable and sustainable water supply systems in all the regions ▪ Ensure that all studies and development activities undertaken by various stakeholders budget for reliable O&M purposes ▪ Develop guidelines and procedures for inspection, preventive, routine and curative maintenance services and for training of technicians as well as develop a network of monitoring systems ▪ Promote the direct involvement of communities, particularly women, in the O&M of water systems. ▪ Promote that operation and maintenance of water systems is based on decentralized approach which enhances sustainability.

As presented in Table 1, one of the policy issues is the establishment of an integrated operation and maintenance framework. Therefore this national rural water supply operation and maintenance strategic framework is answering one of the requirements of the policy.

Table 2: Economic Aspects of the WRMP

Policy components/Aspects	RWS-O&M issues reflected in the existing Water Policy
Water Pricing	▪ Water has economic value and ensure that fees are paid for service rendered ▪ Ensure that the price of water should be neither to high nor too low ▪ Ensure that Tariff structures are site-specific depending on the particulars of the project, location, use, cost and other characteristic of the catchment ▪ Ensure that rural tariff settings are based on the objective of O&M cost recovery ▪ Ensure that tariff structures in water supply systems are based on equitable and practical guidelines and criteria ▪ Provide subsidies for disadvantaged rural communities and the communities shall cover the operation and maintenance cost ▪ Develop flat rate tariffs for communal services like hand pumps and public stand posts
Financing of water development	▪ Coordinate and promote that all funding in the water sector is based on the country's water resources objectives, policy and strategy ▪ Promote credit services, by the government, for water resources development undertakings ▪ Ensure accountability of proper fund utilization obtained from different sources

Table 3: Gender Aspects of the WRMP

Policy components/Aspects	RWS-O&M issues reflected in the existing Water Policy
Gender Issue	▪ Promote the full involvement of women in the planning, implementation, decision making and training as well as empower them to play a leading role in self-reliance initiatives ▪ Promote the direct involvement of communities, particularly women, in the O&M of water systems

Table 4: Stakeholders Aspects of the WRMP

Policy components/Aspects	RWS-O&M issues reflected in the existing Water Policy
Private Sector	▪ Promote private sector participation in technology development, construction, and in operation and maintenance of utilities ▪ Develop a framework for Community-Government-Private sector-External Support Agencies Partnership

Policy Principles on Institutional Issues

The institutional aspect of the water policy is an important component necessary for the implementation of the concepts of operation and maintenance. The institutional component provides a framework and context for private, public, NGOs, community and individual users' roles in the management, development, protection, and utilization of the water resources of the country. Hence, the institutional aspect of the policy clarifies issues like:

- Users management,
- Capacity building, and
- Roles, responsibilities and authority of stakeholders.

Table 5: Institutional Aspects of the WRMP

Policy components/Aspects	Institutional issues reflected in the existing Water Policy
Users management	▪ Decentralization of water management to the local level ▪ Foster participation of user communities ▪ Support community self-initiatives and direct involvement in water resources management
Capacity building	▪ Enhance the service promotion of regional states in the area of consultancy and training ▪ Promote objective oriented training with special emphasis on trades-level training, community participation, administration and finance, and O&M ▪ Assist in the establishment and strengthening of water users associations ▪ Equip water supply organizations with the necessary facilities

Policy components/Aspects	Institutional issues reflected in the existing Water Policy
Clarification of roles, responsibilities and authority of actors	▪ Define the relationships and interactions among the Federal, Regional, Zonal, Woreda and Kebele levels of institutional framework. ▪ Promote linkage to coordinate water resources management activities between federal and regional government. ▪ Avoid or minimize institutional instability ▪ Provision of information, guidelines and directions for external support agencies and establish reliable framework for coordinating and monitoring their activities. ▪ Define and implement the respective roles of the various institutions and stakeholders at all levels including Federal, Regional governments, ESAs, NGOs, private sector, etc.

2.3 Water Sector Strategy

The Ethiopian Water Sector Strategy (2001) acts as a road map to translate the policy into action. The policy as well as the strategy promote the principles of integrated water resources development and management, and accelerate the water supply and sanitation coverage.

1. Puts in place a system to legalise the ownership of WS&S systems. In this regard, promotes decentralized management of these systems. In the case of rural systems, institutionalizes and regulates the role of local communities by:
   (a) promoting the establishment of community based structures;
   (b) facilitating community in developing an interface with the local administrative structures;
   (c) Defining the rules of engagement for service providers.
2. Develops guidelines, principles and norms for streamlining the interventions of external support agencies and NGOs. Secures effective collaboration amongst all the formal and informal stakeholders in the water supply subsector by undertaking the following actions:
   (a) promote private/informal sector involvement in consultancy, contracting, supply of spare parts, maintenance and operation as well as management of schemes (especially urban) services;
   (b) involve NGOs in funding and in the actual implementation, operation and maintenance of Water Supply and Sanitation (WSS) projects;
   (c) Equip water supply and sanitation organizations at all levels with the necessary facilities in terms of manpower and equipment.

Capacity Building Aspects

The strategy strengthens the capacity of water users associations or WASHCOs so that they can make independent informed choices, and remain and serve as a focal point in the water supply management structure which can ensure autonomous decentralised management of the schemes.

2.4 Proclamations, Directives and Regulations

Proclamations have been issued to implement the policies. As autonomous body, regional states are responsible in issuing proclamations on the basis of the water resource management policy. All regions have issued proclamation for the establishment of rural as

well urban water supply and sanitation service. In fact the naming of the proclamations differs from region to region. Some regions issued both the urban and rural together with giving more emphasis for urban water supply than the rural. Few regions issued separate proclamations for rural and urban.

Following the proclamation, the regions are expected to develop and issue regulations and directives by elaborating the proclamation, but these have been done by SNNP and Benishangul-Gumuz regions only. Amhara has drafted directive and Oromia is in a process to start drafting. Tigray, Afar, Somali, Harari and Gambella regions have not yet done any attempts to draft regulations and directives.

The contents of the proclamation, regulation or directive regarding to the O&M and legislation issues of each region are briefed below.

The SNNP regional state issued rural potable water and sanitation association establishment regulation on May 18, 2012 (No. 102/2012). Prior to the regulation a proclamation should be issued, but SNNP went straight to the regulation. Directive, next to regulation is still to be issued. This regulation is unique as it establishes community elected committees at all community levels such as 1) General Assembly, 2) Executive committee, 3) Rural potable water and sanitation association federation, 4) Kebele level water and sanitation association and 5) WASHCO's at individual scheme level. This regulation can be taken as a good exemplary to the rest of the regions to adopt it.

The Amhara National Regional State (ANRS) had issued a proclamation no. 82/2003 for establishment of urban and rural water supply sewerage service. This was replaced by a revised proclamation on re-organization of the water supply and sewerage service for both urban and rural with proclamation no. 188/2011 dated October, 2011. Following the proclamation, the ANRS issued revised regulation with regulation no. 94/2012 dated May 18, 2012 for the combined establishment of urban and rural water supply and sewerage service. The regulation regarding to rural water supply includes only the establishment of WASHCO in general but not in detail of the rural piped system organizational structure. Directive for the establishment of WASHCO has been prepared by the ANRS with detailed description but has not yet been approved. It is a synonymous with SNNP region regulation, but the federation association establishment is not incorporated. The directive addresses both point water source as well as rural piped system community management issues, which is incompatible with proclamation no. 188/2011 and regulation no. 94/2012 in which it was missed.

The Benishangul-Gumuz regional state issued a proclamation for the determination of the organization and the powers and functions of Rural Domestic Water Supply Users' Associations in 2008.Following of the proclamation, the regional Water Mines and Energy Development Bureau prepared directive for the execution of the proclamation as drafted in November, 2013 but this has not yet approved by the regional state.

The Oromia National Regional State issued proclamation for establishment and administration of rural potable water supply service organization with proclamation no. 152/2009 dated July 16, 2009. Nevertheless, the region has not yet developed the successive legislation of regulation and directive.

The same as Amhara region, the Tigray region also issued proclamation for re-establishment of Urban and Rural Water Supply and Sewerage Service, with proclamation No. 122/1999 dated February 17, 2007. This proclamation gave more emphasis for the urban water utility. Regulation was also issued on February 8, 2007, with no. 40/1999. It was issued before the proclamation.

The Gambella People Regional State also issued proclamation for establishment of urban water supply and sewerage and rural water supply and sanitation services with proclamation no. 22/1999 dated March, 2007. The proclamation content is also similar with others like Amhara and Tigray. Here the terms of service of the water and sanitation committee is four years with possible re-election for second time. The proclamation says nothing about the

rural piped system management. The proclamation is shallow in addressing various issued in its articles.

2.5 Water Supply & Sanitation Universal Access Plan

The Rural Water Supply Universal Access Plan (UAP – 2011 – 2015) aims to accelerate progress to achieve 98% access to improved water supply for the rural population with an annual growth rate of 9%. The water supply component of the last Plan for Accelerated and Sustained Development to End Poverty (PASDEP, 2006-2011) was extracted to the UAP and it was adopted as a national plan. This has allowed Development Partners to align their plans and programs with the Government's plan.

According to the National WASH Inventory (NWI), conducted in 2011, access to water supply was 52.1%.

GoE has set out its goals in the GTP-1, which identifies water and sanitation as priority areas for achieving sustainable growth and poverty reduction. In line with the GTP-1, GoE prepared a Universal Access Plan (UAP), with the following targets:

- 98.5% access to water supply, and reduction of proportion of non-functioning water supply facilities to 10%.

2.6 WASH Implementation Framework

To facilitate achievement of the GTP and UAP targets, GoE prepared a WASH Implementation Framework (WIF) to provide guidance for implementing the Sector Wide WASH Program that defines the roles and responsibilities of major stakeholders in the WASH sector.

2.7 One WASH National Program (OWNP)

Water supply, sanitation and hygiene are no longer addressed separately, but as an integrated package aimed at achieving agreed targets. Government is now committed to implement Sector Wide Approach (SWAp) through the One WASH National Program, which is supported by a number of Development Partners and NGOs.

1.07 USD billion was estimated for implementation of rural water supply under the OWNP with construction of 58,118 new water points and water supply schemes, and rehabilitating 20,610 existing schemes in order to achieve the GTP-1 target of 98.5% access in water supply and to reduce non-functionality of water supply facilities to 10%. Furthermore, 19,190 household dug wells and 25,038 community dug wells were expected to be constructed by households and communities through accelerated self-supply program.

The OWNP Phase I (2014-2015) was designed to achieve the goals set out in the GTP-1.

Achieving GTP-1 targets and universal coverage mean that an additional 33.7 million rural and 3.2 million urban inhabitants will gain access to safe drinking water. In addition 22,342 primary schools, 643 secondary schools and 7,772 health posts/centres are also in need of water supply.

The OWNP will be implemented as a joint effort between Government, development partners, NGOs, training institutions, the private sector, community members and other stakeholders. In addition to the Government World Bank, African Development Bank, DFID, UNICEF and Government of Finland have already started contributing to the Consolidated WASH Account at federal level. Other partners, including bilateral and multilateral aid organizations and NGOs, will support the OWNP through other funding arrangements, as well as through provision of technical assistance, supplies and other means.

3 CHALLENGES IN OPERATION, MAINTENANCE AND MANAGEMENT

3.1 General

A number of O&MM issues have been identified by this and other studies and consultations as crucial for sustainability of water supply facilities. The key issues are discussed below. Summary of typical O&M issues and proposed remedial actions are summarized in Annex 3.

3.2 Ownership

One of the main issues that affect operation, maintenance and management of communal water supply facilities is the ownership. The National Water Resources Management Policy (1999) describes the community as the *owners* of a water supply facility. However this is not interpreted fully in the policy and is found on the ground situation in different ways. The issue of community ownership is difficult to conceptualize because of the loose nature of the ”community‟ as an entity. In such instances it becomes difficult for communities to assume full responsibility and accountability for the maintenance of facilities.

Studies [2 &3] revealed that water supply facilities constructed with Government's own budget have not involved communities adequately in construction whereas most projects financed by development partners and NGOs fully involve the community from planning stage to implementation. These different approaches of WASH project implementation have made the community-based scheme management inconsistent among the various communities. The One WASH National Program harmonizes and aligns these inconsistencies and involves communities to varying degrees in planning, provision of labor and contribution of cash, labor and materials as part of capital costs and as a means of instilling the sense of ownership and responsibility to own and maintain the scheme.

The ownership of the facility needs to be clearly defined and understood by the community at the planning stage by demarcating clearly the roles to be played by the parties. Woreda Water Office is responsible to facilitate the registration of the WASHCOs/WUAs as legal entities in some instances and commit kebeles to take legal responsibility in others. This “in-trust‟ arrangement is intended for an interim period only; the ultimate goal is to achieve full community ownership of facilities.

Each of the Regional States shall therefore issue proclamation, directives and regulations to establish WASHCO's/Rural Water Boards and ensuring the legal personality and scheme ownership.

3.3 Status of managing bodies

There is no uniform legal status of the elected WASHCOs or Rural Water Boards(RWBs) to manage the water supply systems constructed with government support. Project implementers have established WASHCOs/RWBs as voluntary associations and requests Woreda Water Offices (WWO) to ratify these establishments as legal bodies thus giving them a mandate to manage the water supply schemes. However, this procedure is logically wrong because the process should have been the other way round whereby the WWO should initiate action to constitute the WASHCO/RWB and delegate them through an appropriate by-law to manage the scheme's assets for a defined period before the construction starts. The unclear mandates given to WASHCOs/RWBs have caused a lot of confusion with WWO in interfering on the affairs of the WASHCOs/RWBs and sometimes dissolving them without due process. It is commonly agreed that the true owners of the water system should actually be the rural communities whose jurisdiction the facility is situated and not the administration.

3.4 Technology Choice

O&M requirements are major concerns when choosing the appropriate technology, and need to be emphasized at the planning stage. This enables communities to make an informed choice of the type of technology they would like based on suitability, cost and maintenance requirements. The source of water gives the initial guidance for technology selection (spring, groundwater, rainwater, etc.). The technology used for developing a particular source also has an important bearing on the O&M requirements, and should be carefully considered. For instance in areas where water is corrosive, resistant materials should be considered.

Due to the usually hurried planning process lacking bottom-up aspects and consultation, discussion on alternative technologies is not adequately done, which greatly contributes to the poor O&M.

The importance of adequate mobilization before construction should be further emphasized. Standardization of technologies to use at national level facilitates capacity building and availability of equipment and spare parts. Proper technology selection contributes to good quality facilities that are better accepted by users and easier to maintain. Current and planned interventions aim to review and strengthen the standardization and detailed specification of technologies for community facilities.

By default, in most of the rural water supply system, Afridev and Indian Mark – II hand pumps are accustomed. Especially Afridev hand pump can be maintained by caretakers. Thus, standardization of hand pumps is needed and encourages local manufacturers to produce such a kind of hand pumps in the Country.

Apart from that of point water supply system, Multi – Village Rural Water Supply system is nowadays demanded for those areas where water sources are scarce in the vicinity in terms of quality and quality aspects. In this case, regions, Zone or Woredas in association with development partners think about the multi – village rural water supply system from where good quantity and quality places in the area. For instance, it is recommended to provide water supply for such a kind of system for areas like Benishangul – Gumuz region which is implementing villagization program/settlement.

3.5 Maintenance and Repair

Despite the sound theoretical knowledge of WASH and good maintenance skills displayed by pump caretakers, most of the communities do not really carry out preventive maintenance. Most communities actually practice breakdown maintenance. This is happening partly due to lack of funds to purchase spare parts and partly due to the lack of real appreciation and understanding of the value of preventive maintenance, despite the theoretical knowledge on the subject matter.

The capacity for maintenance and repair services by pump caretakers is good but this is not supported by availability of adequate funds to effect required maintenance work. Postponing maintenance would eventually lead to more expensive maintenance and costly rehabilitation of the handpump. Measures need to be taken to strengthen (or pressurize communities to) the practice of preventive maintenance.

3.6 Technical Services Support

Woreda Councils have been entrusted the responsibility of legal ownership of community water supply infrastructure and to coordinate the implementation of all development projects within the sector. All Woredas have set up Woreda WASH Team (WWT) to support the delivery and management of water supply facilities within the Woreda.

Zone or Woreda Water Offices, who provide back-up repair services to communities for problems beyond the capacity of WASHCO (caretakers), are faced with a number of problems in trying to provide these essential services.

- High turnover of staff causing the loss of knowledge of the Woreda water supply systems,

- Minimum ratio of staff against the total number of schemes, as a result the staffs do not cover the entire demand of maintenance,
- Difficulty in reaching some communities with no provision of logistics to undertake monitoring activities in support of O&M of existing water supply facilities.
- The staffs are not equipped with tools
- Spare parts not available in the Woreda Office or private shops
- Lack of practical knowledge of maintenance
- No allocation of budget for O&M management activities,
- Emphasis is placed in acquisition of new water supply facilities and not in sustaining of existing schemes.

There is an urgent need to raise the profile of O&M at the Woreda level in order to give attention to issues of sustainability of existing infrastructure including long-term lasting rehabilitation and replacement.

3.7 Community Mobilization and Capacity Building

The community mobilization and training assists in defining the problems, options and roles of Operation and Maintenance Management in early stages. It is crucial that adequate mobilization and relevant training are provided at an early stage, to ensure that all stakeholders are playing their roles and that the magnitude of O&M requirements is well defined, planned and understood.

In the past 10 years, some mobilization actions have been done during the planning and implementation phases of different WASH programs. These include mainly the secure of local resources, selection of sites and election of WASHCOs. Unfortunately, many times the participation has not been inclusive and mobilization has been done in a hurry. The trainings, if carried out, are done after construction. Rarely capacity building need assessments are done to determine the specific training needs of the communities and WASHCOs and the trainings focus mainly on the roles and responsibilities of the WASHCOs instead of practical skills.

Focus of the sector funding and implementation is still on the hardware components. The software issues which ensure the sustainability are given little attention. This phenomenon has been changed in OWNP where budget is also allocated for the software activities. To make it really happen in OWNP it needs close monitoring and supervision. Woredas needs to allocate budget regularly to implement the software components of O&M in order to ensure the sustainable use of the schemes.

Capacity building in Government of Ethiopia financed projects is absent and exists to certain extent in bilateral, multilateral and NGO financed projects. The provision of office and store facilities as well as maintenance tools and manuals for rural piped schemes is still not provided. Refresh training is totally ignored and is not budgeted by the local government and the water board in their annual plans. Due to high turnover of the water board members and the operational staff in rural piped schemes refresh trainings should be mandatory.

3.8 Replacement of Non-Functional Committees

Non-functionality or inactivity of WASHCOs seriously affects the management and maintenance of facilities. This creates a leadership vacuum during which all responsibilities and commitments are ignored. There is need to have clear mechanism to reactivate and/or replace WASHCOS/RWBs that are non-functional. The reasons for inactive WASHCOs are many such as migration, abandoning work, death, etc. The process of replacement should be initiated and taken up by communities and to ensure its implementation the follow-up mechanism through government structures, NGOs or the private sector is to be established.

3.9 Supply Chain

Spare parts for water schemes and pumps have been supplied to users in various ways:

1) Free supply from NGOs and regional water bureaus,
2) Supply with payment from
   a. Retailers,
   b. Woredas and Bureaus with subsidized price,
   c. Water Users Associations.

In most cases NGOs supply spare parts for free for projects financed by them. Many regional water bureaus are procuring spare part items in bulk and distribute them without payment or with subsidized price. Many bilateral and multilateral projects donate spare parts to woreda water offices, which in turn sell them to users with subsidized price. Once the spare parts are finished in the Woreda stock, the users are forced to buy from free market with two to three folds price and in most cases with poor quality.

In Benishangul-Gumuz Region some woredas in Metekel zone have organized woreda level water user association. This association collects money from WASHCOs and use this money to buy spare parts in bulk and then store them at Woreda level. Whenever the member water supply needs spare parts, they can get these from the association store.

Some specific spare parts cannot be procured at all as they have never been provided either by the retailers or projects.

Another problem associated with the spare parts is the varying quality. There is no authorized body to monitor and control the quality of the spare parts imported and provided.

3.10 Financing

In line with Community Based Scheme Management principles, water users are expected to mobilize and manage funds for the maintenance of their water supply facilities. Lack of regular tariff collection and management of funds at community level is one of the weakest links in effective O&M. At present most community water supplies do not collect and keep funds for preventive maintenance and anticipated repairs. Instead they struggle to raise funds after a breakdown has occurred, usually resulting in long down-times.

Studies [2,3] revealed that caretakers or Woreda water technicians could not undertake repairs either due to the non-availability of spare parts or collected maintenance funds or due to the Woreda level budget constraints and lack of technicians. Trainings and follow-up systems have not emphasized on financial management and accountability aspects. In addition communities have not been empowered to take disciplinary action when their funds are mismanaged or when agreements are not honored. Execution of major repairs (including replacement) are also a great concern at present, particularly rehabilitation of boreholes as Woredas have no budget for the costs of major repairs when the need arises.

The WRMP requires that Government (regional and federal) in the GTP – II supports the cost of major rehabilitation, when it is beyond community's capacity. The Regional water bureau's guidelines allow for meeting some costs of major rehabilitations. Unfortunately this facility has been greatly misused due to the inadequate details on utilization of these funds.

Moreover, the rehabilitation targets mostly the hardware ignoring the software and management aspects, which greatly reduces the chances of sustainability of the now rehabilitated structures.

According to the OWNP plan, a total of USD 1,197,103,425 is required for rural water supply to achieve the target of 98% access coverage. Enhancement of self-supply requires an additional USD 8,598,098. The financial requirement is for reinvestment, program management, study and design, *post-construction support, capacity building, water quality monitoring, and catchment management.* TA requirements for supply chain establishment, communication, M&E and Pastoralist WASH are also included into the OWNP plan.

3.11 Gender

Collection and management of water for household use still remains a responsibility of the women and girls in most rural areas. The disruption in water supply and O&M therefore increases the burden of women and girls. Numerous efforts have been made to ensure the effective participation of women in planning and implementation to ensure delivery of appropriate services and sustainable systems. Successes have been also achieved in the election of women on key positions on the WASHCOs, especially as treasurers (they are believed to be more trust-worthy than men). Additional efforts have been made to train women as water supply caretakers to maintain and repair water supply facilities. Despite these achievements, many women are still unable to effectively perform these duties and responsibilities due to the cultural barriers or inadequate capacity building and support mechanisms. .

As WASHCO members, many women lack the confidence, skills and time to serve effectively in their positions. Women still have an enormous load of household duties which do not allow them adequately participate in meetings and trainings. Furthermore many husbands are reluctant to let women do these works as it requires them spending a lot of time out from the household duties. To ensure practical gender mainstreaming, more in-depth research should be done at different levels to understand clearly the gender issues and prerequisites for women empowerment in water supply management. This should be followed up with issuance of relevant policies and directives accompanied with adequate resource allocations for capacity building.

3.12 Institutional Support Requirements

The Government and development partners support for post construction is unclear and inconsistent. After inauguration or handing over of the scheme to the community, the support and follow up by Woreda is found minimal. The O&M cost recovery demarcation is not properly set and community's and government's roles remain unclear. Budget for post construction support is not allocated, even if some region allocates this budget, it is very small amount which covers per-diem and logistic costs only. Proper and regular refreshment trainings are not designed as budget for these trainings are not prepared.

It can be concluded that the main reason for low functionality is that communities are left alone to manage the water supplies by themselves. Therefore mechanism for post-construction support with complementary roles of the communities, the private sector and all levels of government is needed in order to improve the functionality of rural water supplies.

3.13 Monitoring and Reporting

Monitoring and reporting are crucial functions to be undertaken regularly at all levels in order to keep proper track of the performance of the sector. Reliable results of monitoring are the base for realistic planning and timely actions. At present ad-hoc monitoring is carried out at federal, regional and Woreda levels, but this is not adequately planned and coordinated. The existing WASH-MIS in MoWIE does not fulfill the role of streamlining, collecting and organizing social and technical data for meaningful use. The O&M monitoring should be simple, though comprehensive enough to encompass technical as well as social parameters of functionality. Quantitative and qualitative information should be collected for integrated planning and actions. The mechanisms for information collection need to be strengthened and the actual roles and responsibilities of data collectors (WASHCO, WWO, ZWO, Regional Water Bureaus, NGOs, etc.) clearly identified. Monitoring of performance should also identify and report best practices, which can be promoted and shared as lessons learnt.

3.14 Water Quality Monitoring

Water quality tests are conducted only in some cases during the study period implemented by some NGOs, bilateral and multilateral organizations. Water quality testing is absent in Government implemented projects. Water quality monitoring and surveillance is totally

ignored and water quality tests are conducted only when there is an outbreak of health disaster.

4 STRATEGIC DIRECTIONS AND THEIR IMPLEMENTATION STRATEGIES

4.1 General

The Federal and Regional Governments recognise the direct links between improved operations & maintenance practices and the effectiveness and sustainability of water supply and sanitation services. They also recognize that O&M should not be viewed only as a technological or operational perspective but shall take into account management, capacity, financial and monitoring aspects associated with overall performance of water supply services.

Therefore there is commitment at Woreda and Kebele levels to undertake sound operation and maintenance practices and introduce systems and procedures consistent with achieving sustainability in water supply service provision.

In order to alleviate the challenges listed in chapter 3 above, a clear strategic framework and its implementation plan is needed to develop robust operation and maintenance management mechanisms for rural water supply schemes in Ethiopia. Therefore the Government of Ethiopia took the initiative to develop this strategic framework and give attention for O&M management and post construction support.

4.2 Guiding Opportunities

4.2.1 Enabling Situations

The enabling factors that would drive the stakeholder's capacity to achieve the stated objectives in chapter one include but are not limited to the following:

- Relevant sector policy, strategies and guidelines exist and can easily be refined and updated to raise the profile of O&M;
- Communities have potential and are willing to pay for O&M if properly informed, capacitated and motivated;
- Community management of water supply facilities is entrenched in Ethiopia and is effective in many communities;
- Woreda WASH Team is mandated to plan and manage water supply provision and budget for it in the Woreda;
- The private sector is present and able to seize the opportunities offered by the sector to supply services and goods once the incentives are right and demand exists;
- Area mechanics and water point caretakers have proved to be very resourceful in undertaking maintenance and repairs of water schemes;
- The Association of Water Boards are operational and can easily expand its services to support Water Boards.

4.2.2 Growth and Transformation Plan – II

The second Growth and Transformation Plan (GTP – II) covering the period from 2016 – 2020has been prepared. The following targets have been set in the plan for rural water supply. These targets are a good opportunity to tackle the constraints of operation and maintenance management of the rural water supply schemes.

Box 1: GTP – II Targets of the Rural Water Supply Sector

1. Meet universal access in water supply based on GTP I standard in all regions.
2. Achieve 85 % access to rural water supply with GTP II standard. From this 20 % is provided through rural piped schemes.
3. Decrease rural water supply schemes non-functionality rate from 15.5% to 7%.
4. Strengthen rural water supply community management through legalization of all WASHCOs.
5. Empower Women in WASHCO management including in decision making and increase their membership in WASHCO to 50% and more.
6. Establish supply chain for low cost water supply technologies and spare parts.
7. Establish water supply extension supporting system at kebele level to enhance implementation of household and communal level self-supply water and improve O&M of rural water supply schemes.
8. Ensure rural water safety through rural water supply water quality monitoring system and water safety planning and implementation.
9. Train and engage into the sub-sector 4,374 higher and 13,000 medium level professionals and 510,000 artisans and caretakers and ensure that involvement of women in this regard is 25% and more.
10. Establish independent water supply and wastewater service regulatory agency to ensure high service quality.
11. Increase the involvement of the private sector in the water supply activities particularly in O&M of urban water supply utilities.
12. Implement National ICT based M&E and MIS system for the subsector.

4.2.3 One WASH National Program

The planning and implementation of WASH sector in Ethiopia is taking place under the umbrella of One WASH National Program which is implemented by different sectors and development partners' in an integral way. This program is an opportunity to improve the post construction support mechanism.

In OWNP USD 90,028,152 has been planned to be allocated for the implementation of rural WASH and capacity building. Capacity building activities at federal, regional, woreda, kebele and community levels aim to enable all stakeholders to plan, manage and monitor WASH activities. The capacity building is provided through the provision of training, ***post-construction management support***, equipment, tools, and, where required, software for monitoring and reporting, Geographical Information System (GIS) and accounting and billing systems.

The OWNP seeks to improve aid effectiveness and promote institutional reforms, with particular focus on capacity development at Woreda, kebele and community levels. WASH training will be increasingly professionalized and institutionalized through support to training institutions at all levels.

In OWNP plan some 20,615 water supply schemes will need to be rehabilitated to reduce non-functionality to 7% as specified in the GTP - II target.

4.3 Strategic Directions

Based on the above analysis, ground situation and existing opportunities:13 strategic directions have been identified to overcome the challenges of operation and maintenance management.

The 13 core strategic directions are the following:

1. Issue/Amend the needed proclamations, regulations and directives for organisation of rural water services and establishment of WASHCO legalisation and Rural Water Boards,
2. Raise the profile of operation and maintenance management in WASH sector priorities,
3. Distinguish the cost recovery mechanism among different stakeholders and ensure the cost recovery in the community based financial management through three options,
   - Government and Development Partners support only
   - Cost sharing by Government & Development Partners and Community
   - Community only
4. Ensure sustainable spare part supply & management through establishment of either,
   - Revolving Fund Enterprise (RFE),
   - Water Supply Service Enterprise (WSSE)
   - Private Sectors (Micro and Small Enterprises (MSEs)/Associations)

   Selecting whichever, the model needs to be feasible and appropriate to the local context of regions.
5. Reinforce and establish appropriate institutional O&M support mechanisms,
6. Develop and utilize appropriate norms, criteria and design for rural water supply facilities,
7. Ensure Sustainable O&M Service Delivery,
8. Planning and implementation of preventive maintenance of the water supply schemes,
9. Shift the traditional approach of O&M to modern approach of water safety planning from the remote catchment to the end users management by involving various relevant stakeholders and link it to the water quality management through source protection, monitoring, surveillance and testing,
10. Build professionals capacity at all levels through the provision of training, equipment, tools and materials
11. Establish and strengthen of M&E, MIS and reporting system of O&M management,
12. Incorporate O&M Management in to TVET Curriculum
13. Identify and provide financial resources for the implementation of the above 12 strategic directions.

4.3.1 Strategic Direction: Issue/Amend the needed proclamations, regulations and directives for organisation of rural water services and establishment of WASHCO legalisation and Rural Water Boards

The existing proclamations and their successor directives and regulations issued by the Regional States are often incomplete and are missing a number of important issues that should be addressed in the legislation.

All regional states have issued proclamations for the establishment of rural potable water supply and sanitation service. However there are differences among content and the scope of the proclamations. Most of the proclamations for establishment of rural water supply

services are lacking clear directives and regulations that would provide a road map for the implementation of the proclamation. Neither the existing proclamations nor the regulations address specifically the issue of rural piped systems.

WASHCO/Water Board Association establishment as well as ensuring the community ownership through legalization of WASHCO/Water Boards are not well addressed and elaborated in the existing legal framework.

It is neither expected nor realistic to have unified proclamation among all the regions, but there is a need to make the legal framework compatible and in line with the objectives of the water resources management policy. Thus, to address the above mentioned issues, the following objective and implementation plan are proposed.

4.3.1.1 Strategic Objectives

Strategic objectives in terms of issuing the needed legislation are:

- To issue or develop the needed proclamations for the organisation of rural water services including rural piped systems
- To issue or develop the needed proclamations for the establishment of Rural Water Boards and WASHCOs and for the establishment of the WASHCO legalization process for the existing rural WASHCOs
- To create and ensure the sense of the ownership of the community,
- To establish legal personality to the WASHCO and Rural Water Boards to operate, administrate and control of the water supply schemes,
- To define proper asset transfer of the schemes to the owners when the schemes are constructed by the Government, Multi-, or Bilateral Organizations or NGOs,
- To define the roles and responsibilities of different stakeholders for strong post construction support with the help from different stakeholders,
- To enforce clear roles and responsibilities of government actors, NGOs, WASHCOs and Boards and their members,
- To issue comprehensive requirements of transparency and accountability of community representatives,
- To establish performance based monitoring, evaluation system including rewarding mechanism for best performance.

4.3.1.2 Implementation Plan

As soon as this strategic framework is endorsed by all stakeholders, Regional States through the Regional Water Bureau's should amend the existing legislation. These revised proclamations, regulations and directives should consider the following additional issues:

1. Appoint a core sector development advisory group for the process of developing and amending of the legislation,
2. Carry out a comprehensive inventory and analysis of all proclamations, regulations and directives to be reviewed against Water Resources Management Policy in relation to O&M matters,
3. Organize a multi-stakeholder driven consultation to identify key building blocks for new WASH sector legislations with the consideration of O&M management,
4. All Regional states should amend and issue new proclamations based on the review and requirements to ensure the scheme ownership by the community by establishing "Regional Rural Water Supply Service User's Association".

5. Based on the new proclamation all Regional States should develop or revise respective Regulations and Directives including issues mentioned below in Box 2.
6. Develop guidance to raise community water supply system ownership, describing mobilization methods and training processes, which are age/gender sensitive whereby the needs of both pastoralist and sedentary populations are met with equity.
7. Provide on-the-job training of selected community mobilizers at kebele level, in the use of the developed manuals, starting with the use of the manual for the implementation of new water sources and followed by progressively training of communities to manage their existing water sources

Box 2: Some additional requirements in amending proclamations

At least the following issues shall be considered when amending the existing proclamation:

- Title shall be: "proclamation for the establishment of Rural Water Supply User's Association", but can be modified to the local context,
- Definition of terms: like what association mean? What legal personality mean? What General Assembly and Executive Board mean? Etc,
- Scope of the application of the proclamation,
- Principles Guiding the Rural Water Supply and Sanitation Association,
- Legal Personality of WASHCO's and Rural Water Boards: Judicial Personality and Liability,
- Establishment and Registration of the Association,
- Structural Organization of the Association, Name, Logos and Address of the Association,
- Bylaw of the Association,
- Eligibility, Right and Duty of the Association Members,
- Conditions for dismissal and reinstating the membership,
- Power and Duty of Executive Committee and General assembly of the Association, Meeting of the General Assembly and the Executive Water Board,
- Participation of Private Sector in Operation & Maintenance,
- Spare part demand planning and purchasing,
- Financial Management,
- Revenue Source, Revenue Use, Audit and Inspection about the Association,
- Tariff decision
- Use of Revenue,
- Technical Audit and Inspections,
- Transfer of ownership of the Scheme,
- Dissolution and account Auditing,
- Consequence in Dissolution,
- Power and duties of Auditor,
- Concealing the Association,
- Cooperation with other stakeholders,
- Transparency and Accountability of WASHCO, Rural Water Board, Kebele & Woreda Water Offices, Zone Water Office and Regional Water Bureau,
- Implementation of Water Safety Plan,
- Issue of successor legislation like regulation and directive to implement the policy and proclamation,
- Roles and responsibilities of the Water Bureau, Zones, Woredas and Kebeles

4.3.2 Strategic Direction: Raise the Profile of O&M Management

Enthusiasm for the provision of new water supply facilities is high among all stakeholders, including communities and Woreda Councils. However, once the water facility has been completed, the initial excitement that was manifested from community mobilisation to commissioning of the new water facility begins to decline at all levels. As long as the water system functions and water is flowing, attention is removed from the water system and the procedures for ensuring sustained functioning are easily forgotten and ignored at all levels. The community management is based on the principle of voluntarism and memberships in WASHCOs and Rural Water Boards are voluntary positions. This practice seems to exacerbate the lack of interest towards O&M Management.

4.3.2.1 Strategic Objectives

Strategic objectives of the raising of the profile of O&M are:

- To create awareness on the importance of O&M
- To ensure that the stakeholders to play their role in undertaking or supporting operation and maintenance of the rural water supply schemes.

4.3.2.2 Implementation Plan

Measures that would sustain the practice of O&M are needed which include but not limited to the following implementation plan:

a) Community level

- Provide incentives through a system of awards to WASHCOs that are performing well with their O&M and funds mobilization. This is institutionalized through the development of a system of competitive criteria for the selection of good performing communities;
- The support for the provision of additional facilities must be based on evidence of proper management of existing facilities;
- Establish O&M extension service support at kebele level;
- Develop affordable incentives system to “volunteers” responsible for O&M at the community.

b) Woreda level

- Include the following criteria: of “adequate level of follow-up support to communities for sustaining existing systems” into the allocation of additional recourses to woreda new water supply construction.

c) Regional level

- A well-prepared advertising campaign should be mounted in each region covering the entire country over a period of one year focusing stakeholder attention into maintenance and increased motivation to pay for operation and maintenance of the schemes.

4.3.3 Strategic Direction: Distinguish the cost recovery mechanism among different stakeholders and ensure the community based financial management cost recovery

Cost recovery refers to the practice of charging users to cover the costs of maintenance, repair and replacement. Costs covered with the fee collection include, but are not limited to, the costs of community mobilization, planning, design, administration, construction, equipment and operation and maintenance management expenses.

According to the Ethiopian Water Resources Management Policy, rural communities have the responsibility to cover the cost of operation and maintenance of the water schemes. Clear demarcation between O&M, repair, rehabilitation and replacement has not been defined in the policy and it remains unclear.

At the current levels the collected tariffs do not even cover basic O&M let alone accumulate reserves for increasing system capacity or expanding the water supply services. Insufficient cost recovery when collecting tariffs for O&M has generally led to poor maintenance of systems which eventually leads to frequent breakdowns of water supply systems and consequent shut down. These systems then require major and costly rehabilitation.

This strategic direction is to clarify which costs are needed to be covered by the rural community and which ones are to be supported by the government and development partners.

Expecting users to pay all direct O&M costs is a realistic target which rural communities should strive to meet. Direct O&M costs comprise those for maintenance, repair and replacement.

4.3.3.1 Strategic Objectives

Strategic objectives of the cost recovery and financial management are:

- To mobilize the funds which are needed to cover those O&M costs which ensure the sustainable use of the water supply schemes by the rural user community
- To finance the capacity building of the user communities by the Government and Development Partners to be able to manage the required O&M.
- To put clear demarcation of the O&M costs to be contributed by the user community, government and development partners.
- To institutionalize and enforce measures that will ensure adequate funds are mobilized by all partners to cover the cost of operations and maintenance of water supply systems.

Points to be addressed to meet the objectives in terms of

1. Cost Recovery

- Strategic approach, revenue generation, improved government funding, improved development partners' contribution, private sector involvement, O&M Cost Sharing

2. Financial Management

- O&M fund mobilisation, Use and management of user fees, Saving of O&M Funds and Transparency and Accountability.

The detailed descriptions of these considerations are presented in Annex4Additional Consideration for Cost Recovery and Financial Management.

4.3.3.2 Implementation Plan

1. For Cost Recovery

- Identify the O&M Costs such as operational costs, maintenance costs and replacement cost in short, medium and long-term time span for different technology options,
- Distinguishes the various O&M Cost to be shared between the Government and the rural user's communities on the basis of different water supply technologies, affordability/ability conditions and make an agreement,
- Develop a clear RWS O&M Management cost sharing guideline for different water supply technology choices by the MoWIE,

- Develop, introduce and enforce guidelines for cost recovery tariff setting for Rural Piped System (RPS) as well as point sources on the bases of Ethiopian WRM Policy,
- Establish regulatory agency for setting and regulating tariffs as well as monitoring the application,
- Ensure the allocation of cost sharing budget by Regions for O&M Management through Zone or Woredas to execute efficient O&M support in regular way,
- Introduce annual water abstraction permits, taxes and tariffs for agricultural and industrial bulk water users; and allocate a prescribed proportion of these tariffs as cost sharing to support the community,
- Monitor the application of cost recovery principles by any intervention of development partners' and NGOs,
- Ensure the O&M support is an integral and efficiently implemented part of the National One WASH Program through Consolidated WASH Account,
- Facilitate and arrange the involvement of private sector in O&M Management and linking with Microfinance Institutions for loan,

2. For Financial Management

- Determine the different methods of O&M fund mobilization on the basis of government cost sharing guideline, community agreement, technology types and local context,
- Make sure the proper use and management of the collected fund through establishment of appropriate accounting system and monitoring mechanisms,
- Determine the saving methods of the O&M funds and make sure the Woreda Water Office gives directive and permission for the withdrawal of money from the Bank,
- Ensure the transparency and accountability of WASHCOs and Water Boards by referring their roles and responsibilities and place penalties criteria for defaulters and fraudulent acts in the proclamation,
- Make schedule that the Woreda Water Offices regularly checking of the financial records made by the WASHCOs/Water Boards,
- Carry out Value for Money audits and follow up on the findings and recommendations.

4.3.4 Strategic Direction: Ensure sustainable spare part supply & management

The Supply Chains Initiative is an emerging methodology for diagnosing and ensuring that the linkages between actors involved in the supply of goods for sustaining O&M are effective. Criteria for sustainable provision of spare parts are the following:

1. Availability: Are there an adequate range of goods and services available whenever they are needed?
2. Affordability: Is the price reasonable and acceptable?
3. Reliability: Does the good or service meet expectations in quality and standards?
4. Delivery time: Does the delivery time satisfy the users?
5. Accessibility: Is it within a reasonable distance of all users?

A supply chain is effective if one answers positively to all of the above criteria for the supply of goods. The proposed different options of supply chains for the provision of spares parts for rural water supplies are and their characteristics are presented in Annex 5: Model for Supply Chain of Spare Parts with alternative supply chain models. Regions can select the best option which fits to their own context.

4.3.4.1 Strategic Objectives

Strategic objectives of the supply of spare parts are:

- To institutionalize support measures that would strengthen appropriate stakeholder's ability to supply spare parts and management effectively to the communities.
- To establish model for sustainable spare part supply feasible and applicable for the regional context,
- To diversify business environment for spare part provision
- To establish regular preventive maintenance
- To capacitate the retailers on technical and business management aspects of spare part supply

4.3.4.2 Implementation Plan

1. Establish supply chain mechanisms for Rural Water Supply spare part provision, that involves the establishment of revolving fund enterprise or water supply service enterprise or private sector and which generate the opportunities related to the local manufacture of spare part products and services.
2. Link spare part supply distribution by establishing local service providers like Micro and Small Enterprises or Water Utilities or Water Utilities Associations or Water User's Associations, through either of these entities, quality spare parts are delivered to the user communities by fulfilling the above 5 criteria.
3. For the establishment of the *O&M Supply Chain* explore public-private partnership potentials to support water system O&M and service demand. Regional States and Development Partners may provide initial seed money for Revolving Fund Enterprise (RFE) or Water Supply Service Enterprise (WSSE) to procure spare parts with the aim that revolving funds be generated through the sale of such parts to user communities. Spare parts will be sold at cost price and accounted for, so that the stock may be replenished regularly through purchases from the local suppliers.
4. Analyze pros and cons of various supply chain models described in Annex5 as per the characteristics and needs of the given Region

4.3.5 Strategic Direction: Reinforce and establish appropriate institutional O&M support mechanisms

Community management requires continual institutional support. It must not be assumed that once a community has been 'sensitized', 'mobilized' and 'trained' it can be left alone to manage its own water supply. It should also not be assumed that legalization will lead automatically to the sense of ownership, responsibility and willingness to finance and manage the water supply facility.

Defining the Limits of Community Management

The community that can adequately manage its own RWS system during its life time without any form of external assistance is the exception rather than the rule.

Rural communities can be expected to carry out the majority of tasks required to sustain their systems, but they would almost always need some form of support, guidance and backup. The scope and frequency of external support will be case-specific and defined by the limits of the capacity of the community in question and other factors relating to technology choice and the nature of water resources exploited, as well as the capability of the organizations selected to provide this support.

In order to make community management system sustainable it requires continuous and repeated support from an overseeing institutions to provide encouragement, motivation, monitoring, support to planning, capacity building and technical assistance.

Institutional support is best provided by Woredas and Kebeles; although where this is not possible an NGO or other stakeholder can fulfill this role.

In order to establish the institutional support mechanisms, the roles and responsibilities of different stakeholders in relation to rural water service delivery has to be clear. Also the capacity to provide institutional support has to be in place. This is not the case at the moment as the Woreda Water Offices in all regions are suffering from high staff turnover, inadequate support from Woreda Council and Regional Water Bureau, inadequate logistical capacity to conduct monitoring and supervision and inadequate practical knowledge of O&M systems and functions.

4.3.5.1 Strategic Objectives

Strategic objectives of the institutional support are:

- To establish back-up mechanisms to support communities in order to ensure success of Community Based Scheme Management (CBSM),
- To ensure that necessary support is given to the community for continual functioning of established structures and facilities,
- To transfer skills to the communities and local service providers, with the aim of better fulfilling their tasks in O&M and administration,
- To identify and deliver support at an early stage so that corrective actions can be taken and service levels maintained according to standards,
- To capacitate the technicians, mechanics, caretakers and pump attendants to carry out the preventive and collective maintenance and repair tasks,
- To capacitate the spare part dealers to supply the required spare parts,
- To capacitate Woredas to assist and provide technical and other guidance in major repair services,
- To ensure that continuous follow-up is carried out which supports the communities and WASHCOs carry out their roles,
- To actively create new ideas in RWS O&M management,
- To reactivate or re-establish dormant WASHCOs,
- To have a mechanism in disseminating relevant information and performance monitoring of the O&M systems around the country,
- To intervene to the support provided where required, and initiate or adopt new measures to improve the systems,
- To coordinate the O&M management establishment and implementation with all players in the sector
- To strengthen the MoWIE and RWBs O&M functions and capacity to respond to the O&M management needs.

4.3.5.2 Implementation Plan

The following actions are needed to be taken for the improvement of the management of the water supply systems:

- Define the various institutional roles and responsibilities in post construction support,
- Lobby for increased and sustained commitment of the political leaders in addressing RWS O&M and sustainable management systems, translating to increase in O&M

funding and awareness creation at all levels. Agree on final model on institutional framework,

- Define scale of Institutional Support Mechanism (ISM)– Woreda, Regional and National,
- Develop systems and procedures, including caseloads and frequency of visits,
- Determine number of promoters and type of qualifications and training required,
- Establish parameters for technical assistance
- Define thematic areas of support
- Define training support for community
- Define coordination and facilitation tasks
- Estimate start-up costs and capital equipment requirements
- Estimate recurring costs: salaries, mobilization costs and overheads – explore possibilities for cost-sharing
- Determine logistical needs and transport requirements
- Develop full budge
- Determine major fields for monitoring and information-gathering at project level
- Design/ adapt classification system with indicators
- Design community-based monitoring system
- Develop analytical/feedback mechanisms for use of results
- Develop monitoring system at programmatic level for overall ISM effort

Post-construction support (PCS) requires clear institutional structures with well-defined roles and responsibilities.

Detailed information about the institutional support requirement is presented in Annex 6.

4.3.6 Strategic Direction: Develop and unitize appropriate norms, criteria and design for rural water supply facilities

Rural water supply operation and maintenance is highly affected by the poor planning, study, design and construction quality. Water sources are depleted or vanished, pumps failed to operate; pipes are burst and leaking; structures are cracked and etc. These take place due to the absence of consistent norms, standard and criteria and are multiplied with poor contract administration and construction supervision. Lack of appropriate norms and criteria for RWS O&M contributes to the shortening of the life-time of the schemes and high O&M costs. The norms and the standard to be in place could be the depth of the well, the period of drilling, casing materials, wall diameter, pump position, technology choice, geophysical investigation and methods, supervision requirements, standard drawing and specification, and etc.

4.3.6.1 Strategic Objective

The main objectives are the following:

- To prevent the malfunctioning of the water supply system,
- To protect the source of drying up and depletion of groundwater,
- To utilize the facilities for the design period and even beyond,
- To present quality study and design documents,
- To save unnecessary study and construction costs,
- To minimize the operation and maintenance costs,

- To enhance the quantity and quality of water sources.

4.3.6.2 Implementation Plan

The following key points are set as an implementation plan for developing norms and criteria for rural water supply schemes.

- According to the Water Resource Management Policy, the Ministry of Water, Irrigation and Electricity need to develop guidelines for the study and design with the standard design criteria and norms and manuals for contract administration and construction supervisions. Furthermore, regional water bureaus shall disseminate and cascade these down to the Woreda level, accompanied with appropriate capacity building.
- Complete and implement the water supply study and design guideline which has been developed by the Federal Water Works, Design and Supervision Enterprise. This guideline is expected to contain norms, standards and criteria.
- Complete and implement guideline for Water Supply Construction Control, which has been developed by the Adama University. This manual contains contract administration, construction supervision, specification and related issues.
- Promote the introduction of affordable and appropriate technologies suited to local hydro-geological realities. The choice of new appropriate technologies should be piloted and appraised to gauge their uptake.
- Promote alternative geophysical exploration methods to ascertain groundwater access feasibility in challenging hydro-geological areas where the need for fresh water is a critical Government priority for stability and public health reasons.

4.3.7 Strategic Direction: Ensure Sustainable O&M Service Delivery

Poor operation and maintenance of constructed RWS facilities curtails the coverage and reduces the access to safe water facilities. In addition, it forces the users to revert to traditional unsafe water sources, especially in those areas with plentiful surface water sources. This increases the risk of water borne diseases.

Regular maintenance as well as proper operation of facilities is the key to keeping the facilities functioning and providing an acceptable service. In the absence of an effective information system, the extent of breakdown of rural water points is not clearly documented. However as mentioned in chapter 2, a number of evaluation reports of on-going projects indicate that in some areas 20-30% of constructed facilities have broken down. The O&M component of the strategic framework is intended to address this problem. In order to cope up the non-functionality of water supply schemes, the involvement of private sectors is necessary with the selected service models as described in Annex 7.

4.3.7.1 Strategic Objectives

Strategic objectives of the sustainable service delivery are the following but not limited to:

- The key objective is to sustain the state of operation and maintenance of all constructed rural water supply facilities based on full involvement of the beneficiary communities.
- The target is that by end of the GTP – II (July 2020), more than 93% of constructed facilities are operational at any time.
- To make the community-based operation and maintenance management of rural water supply facilities mandatory by establishing well-resourced maintenance system at community and Woreda levels, including transport, equipment, supply of spare parts, as well as trained staff at all levels.

4.3.7.2 Implementation Plan

This implementation plan correspondence with other strategic directions presented above.

- Create enabling environment for private sector in delivering O&M service to rural water supply system,
- Stimulate setting up an association or an enterprise of private O&M service providers at regional or zonal or woreda level and foster mechanisms for regular interaction with regional or zonal or woreda level sector coordination actors,
- Establish public-private-partnerships for operation and maintenance service delivery of RWS.
- Prepare and implement procedures for private sector performance monitoring,
- Introduce systems for independent evaluation of performance (e.g. through benchmarking with other similar private sector) for sharing best practices as a means for exploring opportunities to create partnerships and to build capacity.
- Develop standardised service fees in collaboration with all stakeholders
- Link local service providers to Micro Finance Institutes
- Provide tools and equipment to local service providers and area mechanics through revolving fund office

Annex 7 presents the alternative model for O&M service delivery to ensure the sustainability of rural water supply schemes. The O&M service models are directly linked with spare part supply and management models presented in Annex 5. Detailed information on the different service models are found in Annex 7.

4.3.8 Strategic Direction: Planning and Implementation of Preventive Maintenance of Water Supply Schemes

There are multiple misconceptions about the benefits of preventive maintenance. One such misconception is that preventive maintenance is costly, time consuming, or causes disproportionate work. This logic dictates that it would cost more for regularly scheduled downtime and maintenance than it would normally cost to operate equipment until failure or repair is absolutely necessary. This may be true for some smaller equipment components; however, one should compare not only the direct costs but also the long-term benefits and savings associated with preventive maintenance.

Without a sound preventive maintenance program, labor costs for lost water production time from unscheduled equipment breakdown will be incurred, damages to equipment can be much more severe and potential negative treatment process and/or regulatory ramifications can be unacceptable to the customer and costly to the system.

Study [2] revealed that there are RPSs with good example of poor preventive maintenance planning that suffered from frequently breaking pumps and pipelines. As a result technicians and plumbers were very busy in corrective maintenance large amount of money was needed to carry out the repairs.

Preventive annual maintenance planning should be done by asset management principle. Spare parts requirements depends on the preventive maintenance plan and replacement of each part should be scheduled in advance.

4.3.8.1 Strategic Objectives

Strategic objectives of the preventive operation and maintenance are:

- To minimize untimely equipment breakdown and/or an equipment's condition falling below a required level of acceptability,
- To prolong the life of equipment and system failure rates,
- To ensure accuracy of equipment function,

- To reduce critical equipment breakdowns,
- To allow timely planning and scheduling of preventive maintenance work,
- To minimize production losses due to failures,
- To promote health and safety of maintenance personnel, and
- To create job opportunity at local level.

4.3.8.2 Implementation Plan

The regional Water Bureaus, Zone and Woreda Water Offices, WASHCOs/Water Boards and operators are responsible for water supply service and should develop an annual action plans to implement preventive operation and maintenance.

1. Regional Water Bureau/Zone and Woreda Water Offices:
   - Develop a framework at each level which enables all stakeholders to introduce, participate, support and implement preventive O&M,
   - Identify suitable spare part supply and management model and develop workable supply chain mechanism and promote this service by stopping the provision of free spare parts,
   - Establish and strengthen the capacity of private or semi-private local service providers through training and outsource the O&M service to them and stop providing competitive service with the local service providers,
   - Review and update the training materials for water supply scheme caretakers/operators, local service providers, and provide a refresher training course on preventive maintenance planning and budgeting and effective operation of water supply schemes,
   - Ensure that this strategic framework for O&M management as well as the RWS O&M manual is available whenever needed.
2. WASHCOs
   - Increase WASHCO and Rural Water Board members' knowledge and skills on preventive O&M planning, implementation and monitoring and on the way to how to use service of local service providers,
   - Adopt and implement preventive O&M,
   - Increase WASHCO and Rural Water Board members' knowledge and skills on financial planning and management and sharing of financial information,
   - Make appropriate and effective measures to increase the quantity of water available for users,
   - Ensure the social accountability among the WASHCO members and users as well as local government
3. Local Service Providers (service and spare part supply)
   - Improve own knowledge and skills on technical preventive maintenance and on marketing of available services,
   - Raise the voice for Government to withdraw offering similar services,
   - Actively participate and contribute for the establishment of sustainable O&M service
4. User's Communities
   - Increase own knowledge on the planning of preventive maintenance and need to pay for water services,

- Increase own knowledge on the linkage between safe water and water borne diseases and implement household water safety planning.

4.3.9 Strategic Direction: Focus to Water Safety Planning and Water Quality Management

One of the most critical challenges that rural villages face in terms of water is to secure an adequate source of water in terms of quantity and quality. This is due to:

- Depletion of groundwater and increasing scarcity in drinking water during dry months.
- Heavy rainfall eroded the soil in the catchment area and improper farming practices,
- Temporal and time variation of rainfall causes the deficiency of water quantity to satisfy the demand of the community.
- Deforestation of trees to have more farm land as a result of population pressure.
- Application of fertilizer in the farmlands that could be washed and percolated to deep and contaminate the ground water.
- Poor sanitation – Poor access to sanitation may result in the contamination of the water source and may also lead to the potential cross contamination of spring and Hand dug Well (HDW).
- Animal dung around water sources affects the quality of water.
- Water quality testing was being largely conducted on demand bases
- There are no regular water quality monitoring and surveillance activities conducted on a scheduled and continuous basis

4.3.9.1 Strategic Objective

1. For Water Safety Plan

- To ensure rural water safety through rural water supply water quality monitoring system and water safety planning and implementation.
- To establish water safety plan team assembly which comprises different sector office like Ministry of Water, Irrigation and Electricity, Ministry of Health, Ministry of Agriculture & Natural Resources, Ministry of Environment and Forest and etc,
- To develop a catchment management plan which includes control measures to protect surface and ground waters,
- To ensure that planning regulations include protection of water resources from potentially polluting activities (e.g. industries) by identifying hazardous and hazardous events,
- To promote awareness in communities of the impact of human activities on water quality and its consequences.
- To promote risk management for the identified risks from the remote catchment to where the location of the users.

2. For water quality management

- To protect the public from water borne and water related diseases and keep them healthy and productive,
- To ensure the quality of drinking water supply fulfill the national standards for both microbiological and physicochemical water quality from source to the point of use,
- To set a integrated water quality management approach and practice in collaboration with all relevant agencies to ensure drinking-water safety,

- To promote safe management and storage of water at community and household level in order to maximize the public health importance,
- To establish and implement Climate Resilient Water Safety Planning (CR-WSP) integrated with water quality management.

Ensuring the supply of safe drinking water requires the application of the following measures:

(i) *Water Safety Planning* with the application of the CR-WSP concept at source, kebele, scheme and household levels to ensure the quantity and quality and to prevent contamination before it happens,

(ii) *Monitoring, Surveillance and Testing:* through Water Quality Testing including the provision and use of field test kits by the woreda water office and establishment and running of water quality testing laboratories at Regional Capitals,

(iii) *Treatment* of contaminated water with cost-effective, appropriate technologies and *safe distribution* to households,

(iv) *Legal, Institutional and Regulatory measures* to make the fulfilment of water quality standards mandatory and enforced in a phased manner.

4.3.9.2 Implementation Plan

1. For Water Safety Plan

- Regional States should adopt the drinking water safety planning and implementation approach for rural water supplies to prevent contamination and enhance the yield of the water sources. In order to address water quality as well as quantity problems, the WSP Team must prepare and implement a Water Safety Plan.
- The WSP team should plan, prepare and implement source sustainability water harvesting and groundwater recharge measures for all existing sources of drinking water schemes on a watershed or aquifer basis, wherever feasible and required using Groundwater Prospects Maps, GIS and GPS techniques to ensure maximum water conservation to benefit drinking water sources in a cost effective manner. These plans should be financed by convergence of One WASH National program as well as Watershed Development Programmes.
- Services of qualified watershed management expert, hydro-geologists should be made available to support the Kebele WSP Team in all Woredas,
- GIS mapping of land use, water sources, pumping station, reservoir, water bodies and inter-village pipelines, water points and other infrastructures should be prepared to identify what is found where. It is also used to identify hazardous events and to in place control measures.
- Water Extension Workers, Health Extension Workers, Development Agents (DAs) and others should be involved at kebele level to coordinate and implement WSP.
- As an interim step before provision of safe tap water, point of use treatment such as boiling and filtration of water will be promoted through intensive awareness generation campaigns by HEWs,
- The WSP Team members must ensure regular inspection of the catchment areas to check whether the development activities contaminate the water sources or not.

2. For Water Quality Management

- The Federal Ministry of Water, Irrigation and Electricity (MoWIE), Ministry of Health (MoH), Ethiopian Standard Agency (ESA) and other relevant stakeholders

shall strive to make the national water quality standards mandatory. This involves strengthening existing legislations, issuing necessary guidelines to the service providers, establish regulatory body and set enforcement to meet the standard requirements;

- All water quality testing labs at Region levels, should obtain accreditation from appropriate government body.
- As per the draft national Water Quality Monitoring and Surveillance (WQMS) strategy, different stakeholders involve in this activity. A clear mandates should be in place to avoid overlapping responsibilities among the stakeholders. This issue is to be addressed in the revised WQMS strategy;
- The revised strategy should address the clear roles and responsibilities of each stakeholder;
- Establish water quality testing laboratories in all 9 regions including Dire Dawa City Administration, and hire and train required staff under appropriate Government body.
- Ensure testing of water samples for their physical, chemical and bacteriological quality as prescribed in the water quality guidelines for Ethiopia for each new water point and for monitoring of existing facilities.
- Ensure the water quality data to be recorded at Woreda, Zone, Region and Federal level in the WASH MIS database system.
- Institutionalise the use of standard designs that inhibit contamination of surface water or shallow groundwater by all implementers of water supply schemes programmes. These include sanitary seals, sealed platforms and digging wells as deep as possible to reduce or eliminate the risk of contamination by surface pollution (latrines, dump sites, burial sites and animals).
- The Regional Water Bureaus, Town Water and Sewerage Utilities and Woreda Water Offices must ensure that regular sampling and analysis takes place using sampling techniques and field test kits and regional testing laboratories. The Ethiopian Drinking Water Quality Standard should be followed in the testing.
- The Water Extension Workers (WEWs) along with the Health Extension Workers (HEWs)shall be trained for observing the household situation in potable water usage and reporting to the Woreda health/water offices for any occurrence of contamination.
- The Woreda Water Office's responsibilities, with support from the Regional Water Bureau, include maintenance of the field test kits (replacement of used materials) and meeting the sampling expenses.
- The Woreda Water Office should liaise with Woreda Health Office's and HEWs to monitor incidence of diseases relating to water quality and the results must be shared with the community.
- National level water quality testing laboratories shall support and build capacities of the region levels laboratories. Ethiopian Health, Nutrition and Research Institute (National laboratory) is the leading laboratory in Ethiopia. Other relevant laboratories exists in the organizations like MoWIE, Federal Water Works Study and Supervision Enterprise and Addis Ababa Water Supply and Sewerage Authority at Addis Ababa, while some water utilities do have their own water quality laboratories.
- Encourage to establish private water quality laboratories at National and Regional levels.

- Simple household water treatments should be recommended for the households' use such as boiling, or filtering.
- Water quality data should be recorded at WWO level in the WASH MIS data base system and links to the region and MoWIE – MIS are to be established.
- Integrate Water Quality Management with Water Safety Plan implementation.
- Provide resources and needed logistics to make monitoring possible
- Provide water quality monitoring kits
- Train staff in the use of kits
- Establish bylaws on water quality monitoring
- Conduct regular monitoring

4.3.10 Strategic Direction: Building Professional Capacity at All Levels

The rural water supply sector has suffered so far from the lack of continuous professional capacity building. Either the professionals do not exist or even if they exist, they are not equipped with proper skills and are not trained in regular manner. So far the training has been carried out on project based mode of delivery and some capacity building has been offered, thus it has been very specific. Hence, there is a need to shift from specific project based capacity building to regular capacity building approach.

4.3.10.1 Strategic Objectives

Strategic objectives of building professional capacity are:

- To have skilled professionals at all levels for Operation and Maintenance of rural water supply and specifically with the Water bureaus and offices;
- To strengthen the capacity of the regional water bureaus, zone and woreda water offices to become skilled trainers in rural water supply operation and maintenance;
- To have skilled WASHCO members who can skillfully handle and maintain water supply equipment and tools.

4.3.10.2 Implementation Plan

- Prepare a comprehensive capacity development plan based on:
  - the experience and skills required for the tasks at regional and woreda level;
  - the capacity and adequacy of existing staff,
  - The additional training that will be required for staff to fulfil the roles.
- The MoWIE through the consulting firm has developed various O&M management manuals to capacitate the various stakeholders involved in O&M management of rural water supply schemes. These manuals have been further disintegrated into training modules. The regional water bureaus, zone and woreda water offices should arrange to deliver a combination of class room and field-based training programmes. The training should not be a onetime training, rather should be offered in phases and refresher training shall be delivered periodically.
- Development Partners and NGOs shall provide technical support to regional, zone and woreda staff and helping them in the challenging training programs. Technical support can be in terms of advisory service, provision of training materials, financial support and provision of additional experienced trainers.
- Regional Water Bureaus and woreda water offices should be guided to explore and use existing skilled professionals to assist in operation and maintenance capacity building and

maintenance tasks and in capacity building in the distribution of spare parts and provision of auditing services.

- MoWIE shall support the Regional Water Bureaus with their technical staff to build Regional Water Bureaus' capacity to design tender and manage the outsourcing of capacity building.

4.3.11 Strategic Direction: Establish and strengthen M&E, MIS and reporting systems of O&M management

Lack of monitoring and back-up support service by the Woreda Water Office is a major bottleneck in the attainment of sustainability of community water supply systems. This has resulted in lack of information regarding the status of the systems. Planning for the O&M management needs to be based on accurate and reliable information.

Communities have been left entirely on their own to operate, maintain and to mobilize funds. Compliance in preventive maintenance procedures cannot be enforced. This has resulted in major breakdowns requiring expensive interventions and massive rehabilitations. Due to the low funds availability in these communities to carry out major repairs, the systems are being broken for long periods.

In addition to the inadequate monitoring, there is no management information system established for O&M and record keeping & reporting of O&M activities is very minimal.

Lot of improvements could have been done by sharing other's experiences of different approaches in ensuring functionality. Individual organizations have conducted evaluations of their work but the system for sharing the lessons with the sector is missing.

4.3.11.1 Strategic Objectives

Strategic objectives of the M&E, MIS, Reporting and Documentation are:

- To establish a standard based sector-wide monitoring, reporting and documentation system that strengthens accountability and fosters sector learning towards a strong O&M performance by all stakeholders and partners at all levels.

Means to achieve this objective is to outline steps towards achieving a more inclusive, strategic and accessible information management system, which serves the interests of RWS and its wide spectrum of sector partners.

4.3.11.2 Implementation Plan

- Set realistic but ambitious O&M management targets and objectives for the strategic plan based on available baseline data as well as current financing and performance trends;
- Select, refine and adopt a minimum set of properly defined SMART O&M indicators to measure physical performance O&M, financial efficiency and compliance for the whole sector;
- Compile, analyse and disseminate annual O&M management performance reports based on agreed set of indicators;
- Improve accountability through the establishment of a mechanism for an annual Joint O&M Review that builds on existing practises;
- Incorporate key indicators to measure O&M progress in national survey exercises;
- Carry out Value for Money audits and follow up on the findings and recommendations;
- Support mechanisms at Federal and Regional levels to raise citizens' awareness of implementation and involvement in monitoring;
- Prepare and implement procedures for private sector performance monitoring;

- Introduce systems for independent evaluation of performance (e.g. through benchmarking with peer WASHCOs or Rural Water Board) for sharing best practices as a means for exploring opportunities to create partnerships and to build capacity;
- Reform the current WASH-MIS, with their multiple databases, to provide one unified information system;
- Introduce routine reporting and response system related to the functionality of water points and link report consolidation at the national level with the WASH MIS;
- Make the MIS accessible to all sector stakeholders through internet and by other means for those without internet access;
- Establish a system for sharing evaluations under the O&M Management Technical Committee under the umbrella of the Water Sector Working Group;
- Evaluate and publish the outcomes and studies of specific aspects and approaches in the O&M;
- Continue water point inventory activities and document existing initiatives of sector information management systems;
- Institutionalise and formalise reporting from Kebele, Woreda, Zone, Region up to Federal WASH NIS;
- Expedite operationalization of the WASH MIS to facilitate evidence-based planning;
- Strengthen links between WASH MIS and other relevant mapping services;
- Establish or upgrade the MoWIE website to a wide information portal for the sector, including a Google Group (or similar) as a platform and archive of relevant correspondence;
- Establish two-way information flow mechanism between different levels of Government; as well as WASH sector stakeholders;
- Assign and capacitate staff at Regional level in core data gathering exercises (water point inventory, O&M functionality reports etc.) and the use of appropriate means of IT based communication.
- Incorporate the O&M in the MoWIE M&E and MIS systems
- Resource and motivate Regional Water Bureaus, Zones and Woreda Water Offices to conduct M&E on rural water sector schemes

Detailed information for Monitoring, MIS, Reporting and Documentation is found in Annex 8.

4.3.12 Strategic Direction: Incorporate O&M Management in to TVET Curriculum

At the very centre of quality of technical &vocational education and training lies on an effective interaction between teachers/trainers and learners. In fact, an overall improvement in vocational skills for employability can only be realised if there is an improvement in the quality, effectiveness and relevance of teaching on water supply O&M management. Increasing the emphasis to include O&M management of rural water supply schemes in the curriculum of TVET will improve the relevance of technical and vocational education and training (TVET) system. TVETs play an important role in equipping individuals with relevant skills and knowledge for the labour market.

4.3.12.1 Strategic Objective

Including O&M of RWS in TVET curriculum to enable individuals to participate in understanding of the O&M requirements and technological innovation processes. Therefore, embedding O&M of RWS into TVET curriculum structures is of crucial importance to

capacitate professional technicians with the knowledge to assist the community, caretaker and private technicians in operation and maintenance of the schemes to ensure the sustainability of the facilities.

4.3.12.2 Implementation Plan

- Including O&M of RWS in TVET curriculum to enable individuals to participate in understanding of the O&M requirements and technological innovation processes
- Endorse the requirement of the RWS O&M management curriculum into TVET programme by Ministry of Education (MoE),
- Select the appropriate TVET institute to apply this program,
- Design Curriculum for O&M management of RWS,
- Train teachers to create awareness and knowledge of RWS O&M Management,
- Fulfil the required tools, equipment and other instruments to run the practical session,
- Allocate budget for its implementation.

4.3.13 Strategic Direction: Identify and provide financial resources

Sustainable financing mechanisms need to consider O&M and longer-term rehabilitation, expansion needs. This is essential if systems are to remain operational indefinitely. The emphasis must be shifted from paying for maintenance of a facility to paying for the provision of safe, adequate and accessible water.

In order to implement the above mentioned strategic directions, financial budget allocation is a mandatory requirement by different stakeholders in the sectors.

The community will pay for the O&M costs of the water supply service, including paying staff or contractors and the costs of repairs, maintenance and replacing wearing parts (as outlined above), in accordance with the Ethiopia Water Resources Management Policy. The WASHCOs/RWBs should establish and maintain a maintenance fund for this, with regular contributions from households.

The cost of running the Maintenance Support System will be shared between the community (from its maintenance fund) and the government (through an annual allocation from regional government).

The recurrent costs of the services will be paid by national and regional government from annual budget allocations.

The cost of continuing promotion and education will be paid out of the social component of the community funds.

As ad hoc, the financial resources required to achieve the goals set out in this strategic direction has to be worked out on the basis investment cost and can be taken as 10 to 15 per cent of the investment cost, for which each of the Regional States calculated.

4.3.13.1 Strategic Objectives

The main objective of this strategic direction is to shift thinking from new water supply facilities construction to giving attention for post construction activities and allocating appropriate budget for its implementation to ensure the sustainability of the rural water supply schemes. In other words shift from focusing fully on construction of schemes, to development of service.

Budgetary responsibilities

The first step in ensuring sustained financing is to determine stakeholders' responsibilities for different costs associated with rural water services of the above strategic directions.

Associated costs for rural water supply can be divided into the following categories:

- Needs assessment and community mobilization;
- Technical services for facility provision;
- Technical services for O&M;
- Institutional support for O&M;
- Water Safety Plan implementation;
- National and regional planning, co-ordination, monitoring and evaluation; and
- Upgrading, rehabilitation and expansion.

Sources of Funds

The sources of funding include but not limited to:

- Government, Federal line ministries through One WASH National Program,
- Regional States through allocation of regular budget to the Regional Water Bureaus and Woredas,
- User contributions (cash, in-kind and through repayment to private sector funding),
- Loans and grants from development partners (multi-laterals, bi-laterals and NGOs).

4.3.13.2 Implementation Plan

- Prepare O&M Investment Plan for Rural Water Supply and Sanitation,
- Advocate for an increase in government funding for O&M by demonstrating the economic and social benefits of O&M investment in water supply and sanitation,
- Establish and maintain a maintenance fund for this purpose, with regular contributions from user households,
- Funds would be allocated according to OWNP Guidelines, including allocations for Sustainability, Water Quality and O&M management and for the rests of the strategic directions.
- The Woreda Water Office and WASHCOs should have an annual work plan with activities, budget and timeframe/milestones.
- Other stakeholders like MoH, Ministry of Agriculture & Natural Resources (MoANR), Ministry of Environment, Forest & Climate Change (MoEFCC) etc. should allocate budget for those activities involved, for instance, water quality surveillance, water safety plan etc.
- Funds should be devolved to Woredas from Regional States to implement their village water security plans/annual work plan, with Woredas reviewing operational and financial viability of plans and monitoring whether planned activities are on schedule and to budget.
- Incentive mechanisms should be introduced to reward good performance by Woredas, WASHCO/Water Boards on the basis of agreed indicators.

5 PLANNING FOR OPERATION AND MAINTENACE

5.1 General

Inadequate planning can significantly affect the success of an effective CBSM. Key O&M aspects need to be defined right from the identification stage through the implementation phases. In order to ensure that O&M aspects are mainstreamed in all stages of operation, it is important that they are planned from the identification of the scheme.

Through pre-O&M planning communities are able to make informed technology choices looking at their abilities as their specific needs to fulfill their roles in O&M are identified and catered for.

Mobilization and training activities are to be streamlined alongside with other implementation tasks to ensure their timeliness to build the capacity in O&M. Furthermore focusing to the quality of the facilities from the beginning brings O&M to the front and allows for more effective CBSM.

In addition the management of water from the catchment to point of consumption should be addressed to ensure maximum benefits from the facilities that are addressed in Manual of Water Safety Plan (WSP).

It is generally agreed that most rural communities cannot at present afford to meet the full costs of replacement and that there is need for external support to meet such costs. Government acknowledges this and has made a provision within the current conditional grants funding for major repairs beyond community capacity. These include replacement of complete handpumps, borehole de-silting and repairs. It is important in O&M planning to clearly identify what aspects are to be financed during the construction and after the construction and by whom. The sections below outline how O&M issues should be planned for and integrated rural water supply implementation and management.

5.2 Considerations along the Cycle

5.2.1 Planning Phase

(i) Hold advocacy meetings at both the Woreda and Kebele levels to create awareness and demand for water and sanitation services. For this there a need to prepare guidelines and steps for mobilization of communities. Such meetings should target balanced participation of women and men, and should raise awareness on the:

- Link between clean water, the health benefits derived and therefore the economic benefits accruing;
- Ownership, responsibility of community towards O&M, relevance of community cash contribution for O&M as a sign of the commitment;
- Assessment of the O&M status; factors affecting functionality;
- Benefits of proper hygiene and sanitation;
- Planning procedures, guidelines and conditionality for accessing funding under different programmes.

(ii) Identify and appraise community priorities at various levels and integrate into Woreda development plans. Part of the appraisal criteria should be the ability to effectively maintain facilities.

(iii) Feedback to communities on approved plans / choices.

5.2.2 Pre-Construction Mobilisation and Training Phase

(i) As part of the community needs assessment to guide in decision making on technology choice, allocation of facilities and input in planning for sustainability:

- Assess community capacity and willingness to pay and factors that can affect it;
- Map existing water and sanitation facilities and analyze ongoing O&M practices and challenges, population to be served (numbers, location), socio-demographic characteristics, institutions;
- Assess the specific needs for women and disabled people
- Share information and facilitate discussion on the costs (investment and maintenance) and management and maintenance implications of the different technologies;
- Development of water and sanitation action plans.
- Formation of WASHCOs, identification of attendants, Local Service Providers (LSPs) who perform as masons, plumbers and/or mechanics to be trained; - ensure gender sensitivity;

(ii) During sitting and verification of water sites assess:

- Feasibility of the water source in terms of:
  - Water quality as per the Ethiopian Standard guidelines as well as community perceptions,
  - Adequacy and reliability/ consistency in water supply taking into account the impacts of climate change, and
  - Appropriateness of site for optimal accessibility, ease of water collection and in terms of legality for the land ownership;
  - Water source's multiple use issues and options
- Suitability of the site in terms of:
  - Optimal walking distance, as per the UAP/GTP,
  - Accessible during all seasons,
  - Risk of contamination, need to follow Water Safety Plan
  - Cultural, gender and other social issues, and

(iii) During mobilization and sensitization of communities apply deliberate strategies to target effective participation of men and women. Ensure:

- Sensitization on ownership, benefits of clean and safe water, link between clean water, health benefits derived and therefore the monetary benefits accruing, O&M obligations;
- Finalization of user lists;
- Mobilization of community contributions to O&M and capital investments;
- Consultation on appropriate O&M management systems to adopt in development of the O&M plan; and facilitate community meetings to develop by-laws and plans;
- Verification to ensure feasible and viable O&M plan in place; and

(iv) Signing of WASHCO/Water Board constitution with successful committees stipulating their roles and commitments towards O&M to be fulfilled.

5.2.3 Implementation - Construction Phase

(i) Continued mobilization and sensitization of communities on:

- Sensitization on ownership, benefits of clean and safe water, link between clean water, health benefits derived and therefore the economic benefits accruing, O&M obligations, roles and responsibilities; and
- Maintenance of water facilities.

(ii) The training curriculum for WASHCOs, operators and attendants etc should be geared towards preparation of communities to fulfill their roles during both the mobilization and the O&M phase. Special attention should be paid to:

- Roles and responsibilities of all actors;
- Technical, financial management, reporting, record keeping and monitoring skills;
- Hygiene and sanitation promotion and monitoring;
- Mobilization, communication, management and leadership skills;
- Importance of regulatory aspects e.g. WASHCO constitution and by-laws;
- Maintenance requirements of the different technologies i.e. preventive and curative aspects, maintenance costs over a period of time, spare part requirements;
- Importance and planning for O&M; and
- Review and finalization of O&M plans.

(iii) During construction monitor the quality of materials and work being done.

(iv) All through implementation monitor integration of key O&M aspects. For example development of reporting formats that should include components on functionality surveillance.

(v) Before commissioning or inauguration can take place ensure:

- WASHCOs are in place and functional;
- Communities are sensitized on proper and safe handling of water (safe water chain);
- O&M plan is in place showing how the facilities and systems shall be maintained;
- One year O&M funds have been secured;
- Water source is functional;
- Follow up arrangement is in place;
- Social accountabilities have been established and capacities to carry out social accountability established

(vi) Commissioning/inauguration should be carried out to emphasize the ownership, accountability and CBSM aspects.

5.2.4 Post Construction – O&M Phase

(i) Provide supportive supervision and review on on-going O&M;

(ii) Plan for and support repairs, replacements and rehabilitation;

(iii) Plan for and support replacement and (refresher) training of WASHCOs, operators, caretakers, attendants, mechanics, etc.

(iv) Monitor aspects of:

- Use of water;

- Functionality of the facility (technical, management, financial management and transparency);
- Interventions (technical and regulatory) taking place;
- Quality and quantity of water; and
- Benefits realized from improved services (impact).

(v) Take any necessary remedial action according to findings.

5.3 Operation and Maintenance Plan

In line with the government's continued drive to ensure the sustainability of water supply facilities, it is a requirement that each user community develops a three (3) year O&M plan before it is assisted to develop a water supply facility. This is a plan showing how the water supply facility will be maintained and sustained to ensure continuous and reliable operation over a period of time.

It defines what (activities) will take place (when) by different actors, what kind of costs shall be incurred and how the resources will be mobilized. In subsequent discussions made with stakeholders, it was to adapt a three (3) years O&M plan instead of 5 years which is more realistic. However it should focus on O&M cost recovery and the lifetime costs of managing and maintaining the facility.

After the village has been short-listed based on their application for support, it shall be facilitated through a discussion on alternative water technologies, their costs and O&M requirements for them to make a realistic choice based on affordability and cultural appropriateness. When the WASHCO has been formed and trained, then discussions on the O&M plan can commence. The user community should develop the O&M plan with support from both the Kebele extension workers and Woreda Water Office staff. This plan shall be verified for its viability before a water source can be constructed.

In addition, for the existing water supply schemes this will be required when there is a need for rehabilitation or major maintenance of the schemes.

The O&M Plan should include at least the following components:

(a) Description of the water facility

- Location; name, type of technology, geographical location, GPS coordinates
- Components of the facility (for piped supplies, also specify geographical location of different components)

(b) Management structure

- Details on users / beneficiaries; statistics,
- Composition, term, roles and procedures (meetings, allowances, sanctions, etc) of the WSC/WUA
- Replacement mechanism for the WASHCO/WB
- Other actors involved in O&M of the water supply facility and their roles

(c) Description of O&M activities

- Type and frequency of occurrence
- Requirements to carry out activities (personnel, materials, equipment, costs)
- How to ensure users participate in O&M activities and make their contributions, and how to handle those who do not comply
- Where and how to access handpump mechanics/plumbers and spare parts when required

- Where and how to access extension workers when required for training, follow-up support, etc.

(d) O&M budget

- Expected income and sources (beneficiary community, government, etc)
- Expected costs (minor and major maintenance; repair and replacement)

(e) Regulatory issues (by-laws, agreements with LSP/HPM or other actors)

(f) Environmental issues

Since most WASHCOs are at present not legal entities, the O&M Plan should preferably be ratified by the Woreda Water Offices to give it the required status. The following information is required in order to prepare a realistic plan:

- list of preventive maintenance activities necessary to be carried out for the different water technologies
- up to date costs of spares and where they can be accessed
- life span of the different components of the facility
- update list of users
- information on alternative sources of funding
- monitoring indicators that can be reviewed together with communities before they are adopted

5.4 Preparation of Action Plan

5.4.1 Introduction

Woreda O&M Action Plan, which will be prepared under the guidance of this framework, refers to plans and budgets related only to the improvement of the O&M component, while OWNP comprehensively covers other plans and budget such as construction/rehabilitation of rural water supply facilities, development of information management system, and sanitation.

5.4.2 Stages to Prepare Woreda O&M Action Plan

The most important aspect of O&M is the preparation of actual woreda O&M action plans. Table 6 below explains the flow chart for preparation of the Woreda O&M action plan.

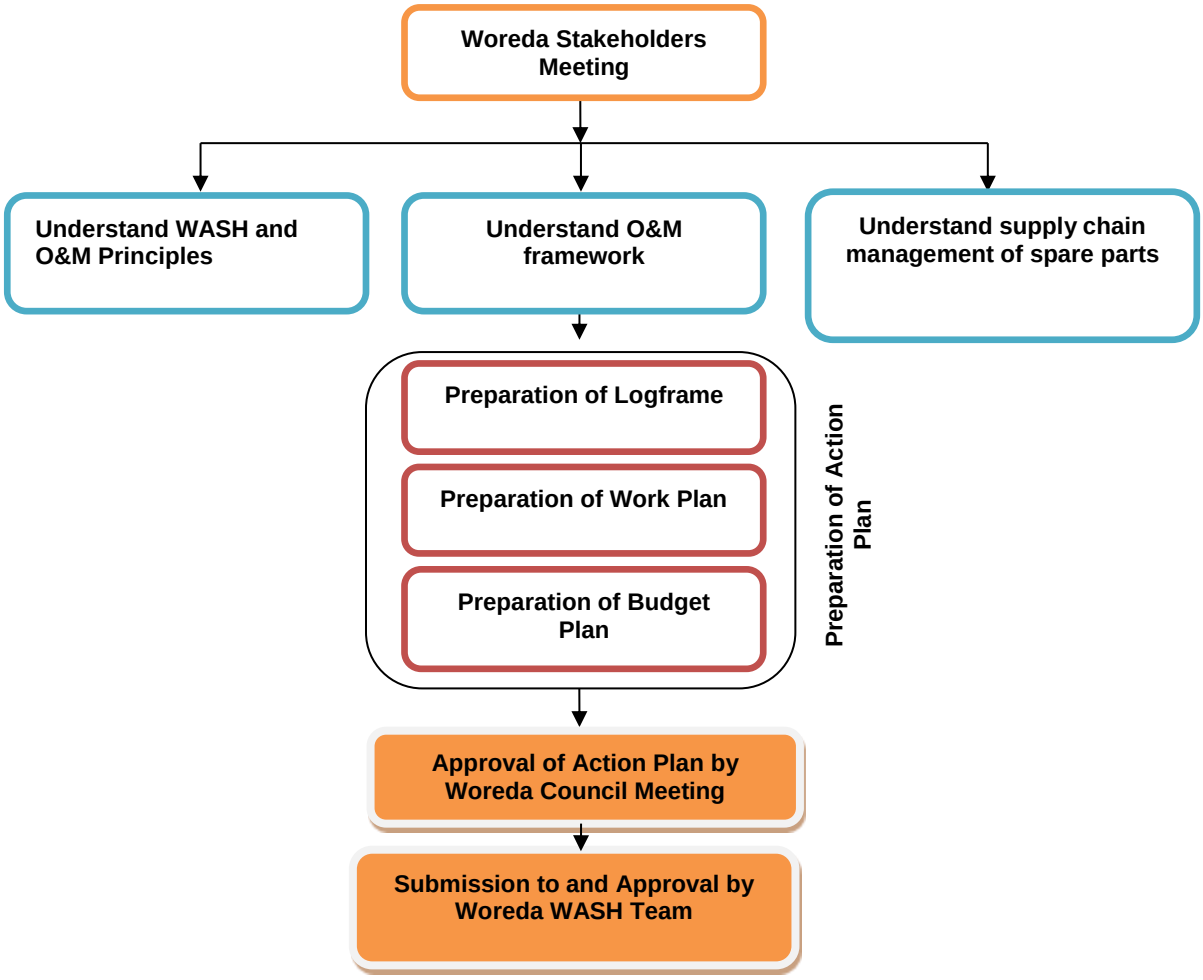
Table 6: Flow Chart for the Preparation of Woreda O&M Action Plan

Stages	Activity	Objectives
Stage - 1 Adoption of National Guidelines	1. Adoption of Water Supply O&M principles	To understand and agree of WIF, OWNP and O&M principles
	2. Adoption of O&M guidelines and mechanisms to be established	To understand and agree on O&M guidelines
	3. Adoption of principles of supply chain of spare parts	To understand and agree on supply chain management
Stage – 2 Analysis	1. Baseline data	To obtain current situation and data regarding RWS O&M
	2. Problem analysis	To identify gaps/ problems
	3. Adoption of ideal RWS O&M system	To redefine roles and responsibilities, and agree on ideal RWS O&M mechanism to be established
	4. Action/ solutions	To develop O&M outputs & activities

Stages	Activity	Objectives
Stage – 3 Transform O&M solutions into Action plan	Log frame	To specify objectives, outputs & activities to be implement
	Proposal	To illustrate strategies & methodology to implement each output &activity
	Work plan	To illustrate implementation schedule
	Budget	To justify necessary funds to implement planned outputs and activities

Figure 5 further illustrates the stages involved in preparation of O&M action plan, the frameworks and concepts to be understood by stakeholders, and the composition of the actual action plan to be submitted to Woreda WASH Team (WWT) approval.

Figure 5: Flow Chart of Stages for Action Plan Preparation



5.4.2.1 Step 1: Understanding of OWNP and adoption of O&M principles

Most aspects of stage 1 (Awareness & adoption of WIF, O&M guidelines and the principles of Supply Chain management manual) are conducted through orientation workshop organized for Woreda stakeholders by the region's O&M sub process.

Stakeholders

The stakeholders meeting for introduction of O&M Component activities shall be held with the following stakeholders but not limited to

Woreda WASH team and WASH Coordinator:

- Woreda Administrator,
- Water Office Head or delegate
- Health Office Head or delegate
- Education Office Head or delegate,
- Woreda Finance and Economic Development Office Head or delegate,
- Women, Youth and Children Affairs Office Head or delegate,
- Agriculture Office Head or delegate
- NGOs working in the woreda

Issues to be Discussed and Agreed

In the Stakeholder meeting, the issues to be discussed include but are not limited to the following:

National Frameworks

All stakeholders have to understand the frameworks stipulated in the documents described in the Table 7 below:

Table 7: List of References for National Guidelines

Name of documents	Notes
Water Resources Management Policy, Strategy	Understand the issues of O&M management stipulated in the policy and strategy
Proclamations, Directives and Regulations issued by each of the Regional states on the establishment rural water supply service	Each of the 9 regional sates and Dire Dawa Administration issues proclamation for the establishment of rural water supply service and need to understand how it address the ownership, legalization issues.
National Water Supply, Sanitation & Hygiene Implementation Framework (WIF) and OWNP	National WASH Programme document for rural water supply and sanitation All stakeholders are implementing WASH program in one umbrella: One Finance, One Plan, One Report principle
Decentralization Policy	The way forward on development, devolved responsibility to Woredas and Sub-structures
Growth and Transformation Plan (GTP) II and Universal Access Plan for the sector – 2020.	Developmental goals of the sector, and achievement of GTPs

As a result of discussion, stakeholders should agree on framework, implementation process, roles and responsibilities. This agreement should be clearly recorded in form of minutes of meeting. In general, stakeholders may organize series of meetings to discuss overall issues

of RWS. In such a case, WWT Secretary has to make sure that process of discussion is recorded chronologically.

5.4.2.2 Stage 2: Analysis

The analysis stage has three interrelated parts described as follows:

Part - 1: Utilization of Baseline data

Woreda should clarify institutions, organizations, groups, and people involved in operation and maintenance of RWS facilities in the Woreda. It is understood that although the O&M proper is not yet established or implemented, there is something happening at grassroots, some kind of repair work that communities are doing to continue accessing water from existing hand pumps. Therefore, based on their baseline information and MIS data, WWOs should carry out inventory of the prevailing situation and or practices of O&M.

Part - 2: Problem Analysis

Problem analysis is the process to analyse the gap between the current situation and the ideal situation. There are many ways of problem analysis which lead to identification of gaps, and to develop solutions to realise the ideal situation. Examples are: (1) Table format for participatory planning, (2) SWOT analysis and (3) the Logical framework approach.

1) Participatory Planning

Table 8 below describes a simple way of participatory planning that could be used for identification of gaps between actual and the ideal situation.

Table 8: Format for Participatory Planning

Core O&M issues	Actors	Expected Role/ Responsibilities	Identified Gaps between Actual & Expectation	Solutions
Availability of spare parts	WWOs WASHCOs	Procure & sells spare parts Replenish spare parts	There are no spare part in the Woreda Hardware shops do not stock hand pump spares	Establish spare part shop Advertise availability of spare parts to community
Availability of tool kits	WWOs WASHCOs	Procure tool kits Distribute tool kits to WASHCOs centres/APMs	There are no tool kits in the Woreda Hardware shops do not stock hand pump tools	Procure and distribute tool kits to WASHCOs
Community contributions	Community Caretaker	Contribute O&M funds Manage properly O&M funds	Users do not make enough contributions	Sensitize communities on O&M
O&M monitoring	WWO	Develop monitoring tools for O&M Monitor WASHCO O&M activities	Monitoring tool not well defined	Prepare monitoring tools
	WASHCO	Inspection of water points Prepare & submit report to WWO	There are monitoring forms for use by WASHCO	Develop tools & conduct WASHCO training on O&M monitoring
	APMs	Prepare reports on Number of faults received and action taken and submit to WASHCO	APMs do not have Monitoring forms APMs not well trained	Prepare Monitoring forms and train APMs
	Caretaker	Carry out minor repair works	Caretaker not well oriented on roles/responsibility	Provide regular and refresher training

Core O&M issues	Actors	Expected Role/ Responsibilities	Identified Gaps between Actual & Expectation	Solutions
Skill/knowl-edge (capacities)	WWO	Perform their roles/responsibilities on O&M	Woreda-WASH actors are not trained on O&M	Conduct training on O&M of hand pumps for Woreda-WASH
	WASHCO	Manage the scheme	Do not have capacity to perform their roles/responsibilities	Regular and refresher training
	Area Pump Mechanics APMs	Repair & maintain hand pumps	APMs not well oriented on roles/responsibility	Train APMs
	Caretaker	Minor maintenance	No capacity to do the maintenance	Technical maintenance training

2) SWOT Analysis

SWOT analysis involves carrying out a review of available stakeholders, their roles and responsibilities as well as the programmes that are on-going by considering their strengths, weaknesses, opportunities and threats as illustrated on table below.

Table 9: SWOT Analysis

Actors	Strengths	Weaknesses	Opportunities	Threats
WASHCO	Availability of WASHCO members in community	Not all woredas have WASHCOs in place	Annual budget by WWOs include formation of WASHCOs	WASH Technicians as WASHCO members belong to MoWIE and holding them accountable for submission of report is a challenge
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3) The Logical framework approach

This approach involves 3 major aspects namely: a) the Problem Tree, b) the Objective Tree, and c) the Project selection. The detailed methodology and steps to develop O&M action plan using the logical framework approach.

Problem Tree

Problem Analysis visually presents the cause and effects of existing problems in the form of Problem Tree. To develop this, you identify the core problem, and then write down the direct causes of the core problem.

Explanation of how to state problems identified

Causes and effects of problems ultimately lead to the core problem. When you prepare problem tree for analysis, you should state the problems in detail. For instance, instead of saying “inadequate number of APMs” in general, you should state: “Number of APMs in Catchment A, B and C is not enough” highlight the number of APMs that are lacking in a particular area. A sentence like “spare parts for repair of hand pumps are not available for community members” will make the situation and problems more specific rather than writing “spare parts are not available”. Thus, Problem Tree should be well phrased to illuminate specified problems.

Objective Tree

After the Problem Tree analysis, the next step is to prepare an objective Tree as illustrated in Figure 5-3 below;

- An objective tree is developed by taking a problem tree and replacing cards showing "cause-effect" relationships with cards showing positive "means-ends" relationship.
- Objective analysis clarifies the "means-ends" relationship between the desirable situation that would be achieved once problems have been solved and the activities for attaining it.

Aims to display all possible solutions and forms the foundation for the project's specific strategies. In short, this forms the basis for developing Outputs and activities to be carried out.

Project Selection

Project Selection is a process in which specific project strategies are selected from among the objective and means rose in Objective Analysis, based upon selection criteria.

Project Selection starts by identifying this Approach and drawing around them with Approach Name. Rose

Procedure:

1. Circle Approaches on the Objective Tree and name each Approach in a manner that makes its objective clear.
2. Choose the selection criteria for comparing Approaches to be examined.
3. When negative factors have been identified, consider altering the Approach and use card to show that it requires further investigation.
4. Select one Approach to be developed into a project.

Selection Criteria are added or changed depending upon sector, organizations and scheme of cooperation. Example of selection criteria appears below:

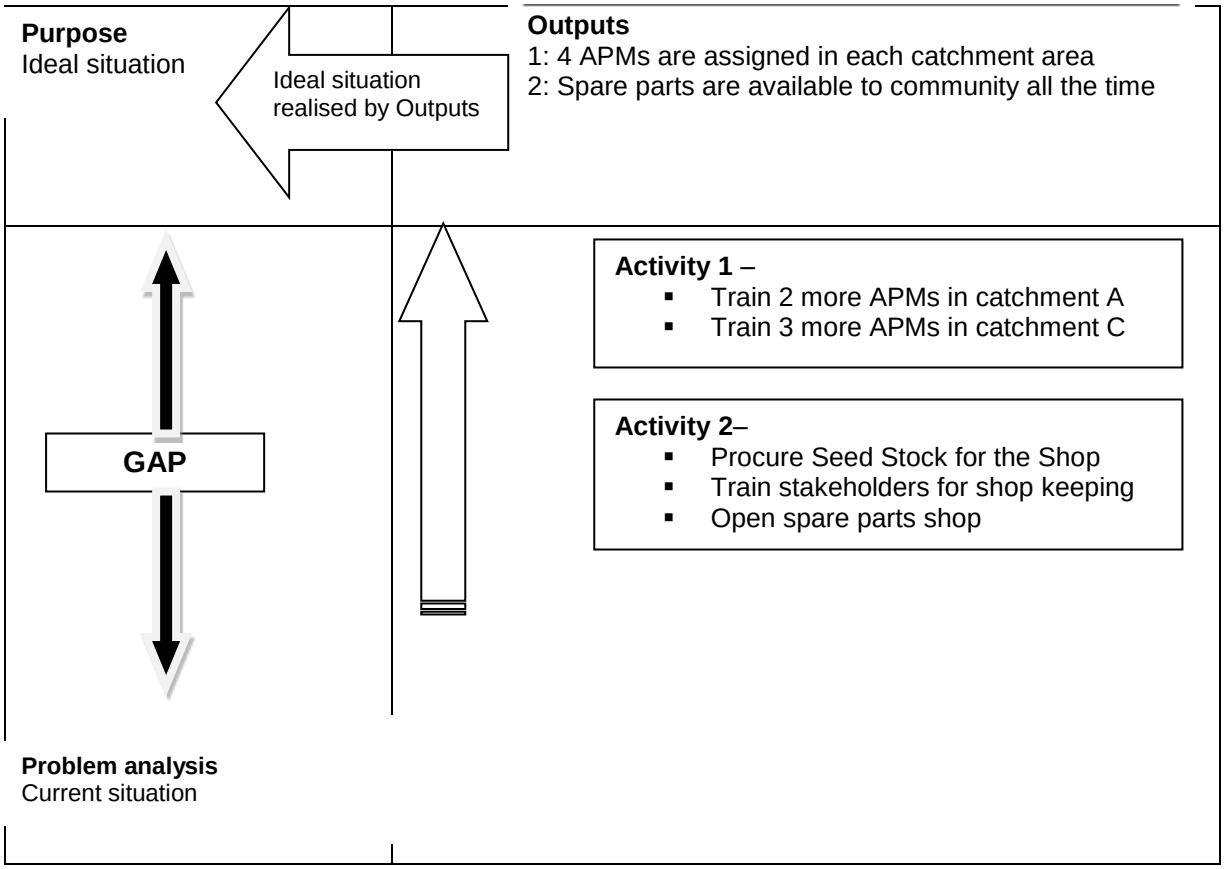
Example of Selection Criteria

1. Target Group: Name of the target group, number of people
2. Related Agencies: Capabilities of and potential for cooperation from, the implementing agency and cooperation agency.
3. Inputs: Types, quantities, and qualities of inputs.
4. Needs: What the target group requires?
5. Policy/Strategy Priorities: Considering the policies and strategy of the donor and recipient
6. Feasibility: Prospect for achieving the Approach Objective

5.4.2.3 Stage 3: Transforming problems/solutions into Action Plan

Results of stage 1 & 2 (Adoption of National guidelines and Analyses of data) lead to development of Outputs and activities. These outputs and activities are solutions to the identified problems, and should be transformed into Action plan. The Action Plan constitutes of the Narrative Proposal, Log Frame, Work Plan and Budget Plan. This will be illustrated as results of problem analysis. Conceptual framework of Log frame is illustrated in Figure 6with reference to preparation process of Action Plan, and how Log frame is designed to bridge the gap between current situation and ideal situation.

Figure 6: Conceptual Framework of Log-frame



Log frame

The Logical Framework method is a tool for managing the entire cycle of a development project - from formulation and implementation to evaluation - by means of Logical Framework. It is commonly referred to as Project Design Matrix (PDM).

The Logical Framework shows the Objectives, Activities, Inputs and other components of project, together with their logical interrelations.

Narrative Proposal

This is a descriptive summary of the O&M Action Plan (Log frame, Budget and work plan) to explain Woreda information, Outputs, Objectives, Activities to be carried out, Methodologies and approaches or strategy for implementation and the expected Outcomes. Table 10 below illustrates components of the narrative proposal document to be prepared on O&M activities. For detailed information on these activities refer to Implementation section of this manual.

Table 10: Format of Narrative Proposal

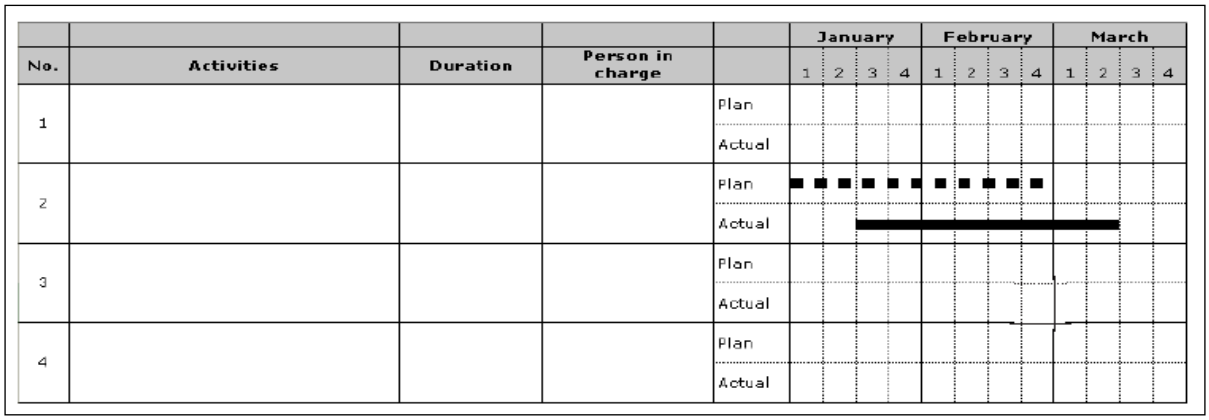
Major Items	Description
Background Information/ Woreda profile	Provide Woreda data on RWS, stakeholders involved and any other relevant information regarding the Woreda situation analysis, overall objective of O&M, Purpose and problem statement/ justifications
Summary of O&M activities: Summarize the Outputs and activities to be conducted as below	
Name of Output, and Number	Write the Output number and the title (Name) of Output as indicated on the Log-frame
Objectives	Write the objectives of the Output. Each output has its own objectives

Major Items	Description
Target group	Indicate the target (beneficiary) group for the activities outlined for this Output
Methodology/approach	Describe how you will carry out activities under this Output, who will be involved, how many persons will be involved in implementation, what will be done, and where and when activities are likely to be conducted. This includes selection criteria for the target group and the number of sessions or phases for conducting activities. The significance of this section of proposal is that it provides information on how to plan and prepare your budget. It also provides strategy for implementation such that even if there is change of staff, anybody who takes over will be able to be guided without difficulties
Expected Outcomes	Describe and explain what you expect to achieve, or the results expected after conducting these planned activities for this Output.
Budget Summary	In summary, describe the budget and its allocation to Outputs and activities

Work Plan

Planned activities under Log-frame should be presented in a form of Gantt-chart. The Gantt-chart will help Woredas to overview entire implementation process and to monitor the progress of implementation. This Gantt chart is called the Work Plan and its format is presented in Figure 7.

Figure 7: Work Plan



Planned duration should be shown in dotted line or by shading the boxes. Similarly, duration of actual implementation is entered by putting a continuous line or by shading using a different colour. Progress for implementation of activities should be monitored all the time and each output should have its own work plan sheet.

O&M Budget plan

Woreda WASH Team is required to prepare comprehensive budget to carry out O&M activities in the Woreda, not restricted to specific areas. The plan will be implemented within the framework of WIF and as a part of its O&M component of the Woreda RWS budget plan.

Woreda WASH Teams are further advised to follow the laid down accounting and budget systems within the framework of the government guidelines.

However, for the purpose of information sharing, the following format/template of budgeting and categorisations of cost areas which was used under.

Table 11: Definition of Categories

No.	Category	Definitions
1	Allowance	Allowance means cost to pay participant(s) and/or trainer(s) for training and/or sensitization (not meeting) such as; ▪ Daily Subsistence Allowance (DSA)
2	Transport Cost	This category includes cost for travel from duty station to venue of training/sensitization and field visit under trainings such as; ▪ Transport Refund ▪ Fuel Cost
3	Hire (Conference Hall, Vehicle, etc)	Hire covers rental charge of space and equipment as follows; ▪ Conference room ▪ Multiple projector ▪ Other equipment required for workshop/training
4	Conference Cost	Under this category, LA can require fund necessary for holding conference which includes; ▪ Tea breaks (once per a half day) ▪ Lunch (with maximum of one drink for each lunch per person) ▪ Water (once per a half day) Maximum amount of conference cost per person per day is ----------ETB.
5	Communication	Communication is to contact stakeholders such as APMs, WASH teams, also to communicate with Region and Zone Water Bureau by communication tools such as; ▪ Telephone-call ▪ Facsimile ▪ Mailing letters ▪ Emails at internet café
6	Stationery	It covers cost to prepare materials necessary for training/sensitization such as; ▪ Writing material (Pen and maker) ▪ Paper (notepad and flipchart) ▪ Photocopying ▪ Binding
7	Procurement of materials	This category is for procurement of materials which can be utilized for long period and could be differentiated from materials for short-period use such as stationery. Cost that is necessary for implementation of O&M activities but cannot be included in any other category will be described under this category. Examples are; ▪ Bicycle ▪ Vehicle ▪ Computers

5.4.2.4 Approval of Action Plan by Woreda Cabinet

Action Plan should be officially approved by full Cabinet meeting. Otherwise Action Plan will not be recognised as O&M component plan under OWNP.

5.4.2.5 Submission to Regional Water Bureau and Its Approval

Action Plan approved by full Cabinet should be submitted to the Regional Water Bureau (RWB) directly through Zone Water Office, and if necessary RWB may request Woreda's the revision of Action Plan based on the comments the RWB.

5.5 Implementation of O&M Activities

More detailed O&M activities to be carried out are described in the Rural Water Supply Operation and Maintenance Management Manual for Point Water Supplies, Volume – I, Part H.

5.6 Work Plan for Implementation of O&M Strategy

It is needed to make an agreement to fix the implementation of this O&M strategic framework. It can be proposed that 12 months may require in the first instance, after which an overall evaluation will be made to consider progress under the various components. See the sampled detail implementation plan in Annex 2.

ANNEXES

Annex 1: References

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Annex 2: Demonstration Work Plan for the Implementation & Monitoring of O&M Strategy

Table 12: Demonstration Work Plan for the Implementation & Monitoring of O&M Strategy

No.	O&M Strategic Activities	Year - O&M Strategy													Management and Coordination: Key Persons or Organizations	Process Monitoring: Key Indicators of Progress	Useful resources Documentations
		Year	2018						2019								
		Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun			
1	**Legal Framework**																
1.1	Amend the existing proclamation, Directive & Regulation based on the strategic direction														Regional State Governments	WASHCO/RWB legalization, Ownership, registration and certification; RFO/E, LSPs	Water Policy, Strategy, Existing proclamations, directives, regulation
1.2	Issue Proclamation, Directive and Regulation for legalization of WASHCO/RWB																
1.3	Issue Proclamation, Directive and Regulation for establishment of Revolving Fund Office/Enterprise and Private Sector involvement																
1.4	***Spare part and Technical Service***																
1.4.1	Develop clear guideline for the establishment of Revolving Fund Office/Enterprise at each of Regional States														Regional Water Bureaus	Organization structure, recruitment of staff, fulfill equipment & tools, warehouse and shops	Spare part supply & management manual
1.4.2	Establish Revolving Fund Office/Enterprise at each of Regional States																
1.4.3	Develop clear guideline for the involvement of LSPs on RWS maintenance and retailing of spare parts																
1.4.2	Organize LSPs on RWS for maintenance and retailing of spare parts																

No.	O&M Strategic Activities	Year - O&M Strategy													Management and Coordination: Key Persons or Organizations	Process Monitoring: Key Indicators of Progress	Useful resources Documentations
		Year	2018						2019								
		Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun			
2	**Planning for Spare parts**																
2.1	Establish RFO/E Office at region and warehouse at Zonal town														Regional Water Bureaus		
2.2	Develop Guideline for organizational structure																
2.3	Recruit RFO/E personnel																
2.4	Equip the RFO/E with the necessary equipment, tools and instruments																
2.5	Hold budget for construction of warehouse at regional capitals and zone towns																
2.6	Construct the warehouse at different outlets																
2.7	Compute the spare part requirements in each Woredas based on the SP manual method of calculation														Revolving Fund Office		
2.8	Consolidate the various types of the spare part demand																
2.9	Plan for procurement & bidding for SPs, tools, equipment etc																

No.	O&M Strategic Activities	Year - O&M Strategy													Management and Coordination: Key Persons or Organizations	Process Monitoring: Key Indicators of Progress	Useful resources Documentations
		Year	2018						2019								
		Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun			
2.10	Allocate seed money by regional water bureau														Regional Water Bureaus		
2.11	Procure and delivery SPs as per the plan														Revolving Fund Office		
2.12	Train the LSPs on maintenance and spare shop operation and management														Regional Water Bureaus		
2.13	Distribute the SPs to LSPs and fix the price of selling														Revolving Fund Office		
3	**Resource allocation & Assign**																
3.1	Assign appropriate staff at Woreda Water Offices; increase number of staff as per the recommended ratio																
3.2	Arrange and offer training as per the training need assessment																
3.3	Develop work plan for O&M support, supervision and monitoring																
3.4	Allocate budget to carry out O&M management support																
3.5	Procure the necessary equipment, tools, instrument																
3.6	Link loan to LSPs from Micro Finance Institutes																

No.	O&M Strategic Activities	Year - O&M Strategy													Management and Coordination: Key Persons or Organizations	Process Monitoring: Key Indicators of Progress	Useful resources Documentations
		Year	2018						2019								
		Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun			
4	**Capacity Building and Training**																
4.1	Carry out training to RFO staff																
4.2	Carry out training to LSPs																
4.3	Carry out training to WWO staff																
4.4	Carry out training to WASHCOs/RWBs																
5	**Establish Monitoring & MIS**																
5.1	Develop and adapt supervision, monitoring & evaluation formats & reporting system																
5.2	Development of MIS, Data Fields and indicators																
5.3	Regional Water Bureau supervise, monitor & evaluate the RFO/E																
5.4	Zone and Woreda Water Office supervise, monitor and evaluate LSPs, WASHCOs/RWBs																
5.5	Establish periodic review and analysis timetable																
5.6	Monitoring community affordability and willingness to pay																
5.7	Conduct community mobilization and sensitization																

No.	O&M Strategic Activities	Year - O&M Strategy													Management and Coordination: Key Persons or Organizations	Process Monitoring: Key Indicators of Progress	Useful resources Documentations
		Year	2018						2019								
		Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun			
6	**Plan for O&M Activities**																
6.1	Hold advocacy meetings																
6.2	mobilization and sensitization of communities																
6.3	Plan for routine maintenance																
6.4	Plan for preventive maintenance																
6.5	Plan for breakdown Maintenance																

Annex 3: Summary of Typical O&M Issues and Proposed Remedial Actions

Table 13: Summary of Typical O&M Issues and Proposed Remedial Actions

Issue	Current Status	Constraints	Proposed Solution	Responsible
Ownership	Ownership of the point water sources is ideally supposed to be vested in the user communities through their WASHCOs/Rural Water Board	▪ Community of users is not adequately defined, ▪ Community of users not adequately aware of their rights and responsibilities ▪ Lack of clarity of ownership and management of point sources reduces the sense of responsibility	▪ Amend the existing proclamations by stressing the ownership of the schemes belongs to the users, ▪ Registers of Users should be attached to applications for new sources, together with details of their contribution towards construction water supply schemes be registered, supervised and monitored by the Woredas in accordance with the proclamation. ▪ They will then be legal entities and can own the facilities. Woreda to work out modalities for formation, operation of the WASHCOs/RWBs as provided for in the proclamation.	Regional Water Bureaus Zone and Woreda Offices
Institutional Support	Institutional set up at all level is not formally deal with the O&M issues	▪ Between 20 – 30% of the water supply facilities is not functional at a time. There is no integrated approach to address O&M issues. The focus of many programmes is on the construction of new facilities, ▪ Woredas don't have a formal working group to address O&M issues. There is no a mechanism to support WASHCOs/RWBs and to solve O&M related problems	▪ A preventive and rehabilitation plan should be established to decrease the number of facilities currently not functional ▪ The WWO should lobby for an O&M fund A fulltime working group with a clear mandate should be established at all levels. Programmes should integrate O&M, the Regional Water Bureaus should enforce this in the proposals, ▪ Regular allocation for O&M support should be in place, ▪ Identify what support should be consistently offered by the water sector at all levels.	Ministry of Water, Irrigation &Electricity Regional Water Bureaus Zone and Woreda Offices

Issue	Current Status	Constraints	Proposed Solution	Responsible
Funding	▪ No mechanism at the user level, to budget and plan for O&M activities. Inadequate user fee collection ▪ Collection of user fee based on when the need arises, i.e. when there is a breakdown which causes a long down time period with no access to safe water ▪ No proper means for safekeeping of user funds ▪ No O&M cost recovery plan ▪ Poor record keeping and system of accountability for user funds ▪ No regularity in WASH program between partners intervention to the Government.	▪ Limited planning, budgeting and financial management skills among WASHCO members ▪ Inadequate knowledge of the maintenance costs of the water supply facilities ▪ Poor accountability for user funds which discourages payments ▪ Low appreciation for improved facilities ▪ Lack of access to community banks and other means for safe keeping of community funds ▪ Limited ability of communities to meet O&M cost recovery i.e. major rehabilitation like replacement of parts, etc. ▪ Weak monitoring and system of follow up of the community management structures for back up support	▪ Start with social marketing approach emphasizing to the social and economic value of water and the link between water and health benefits. ▪ Develop water supply facility maintenance overview over a period of time showing rate of depreciation, costs incurred to input in the budgeting and user fee derivation ▪ Develop appropriate formats and accounting systems and facilitate communities to adapt for their own use ▪ Train WASHCOs and RWBs in good financial management and record keeping ▪ Institutionalize a follow up mechanism for the community management structures stretching from the lowest level to the Woreda level. Community shall be responsible with the regular monitoring, reporting on functionality ▪ Promote regular record keeping for realistic budgeting	Regional Water Bureaus Zone Water Office Woreda Water Offices Consultants
Spare parts	▪ Spare parts supplied by private sector ▪ Some partners/NGOs have made other arrangements ▪ Regions procure in bulk and distribute ▪ The modality for the provision varies, some provides free of payment, some other with reasonable payment, some WASHCOs forced to buy from the market with high price.	▪ Suppliers only confined to main towns. ▪ Most spares are slow moving creating low demand and loss of interest in the business by the private dealers ▪ The cost of spares seems not easily affordable by rural communities ▪ Free provision discourages the community to pay and makes dependency, ▪ Unavailability to the nearest location	▪ The study of the supply chain should be adequately guided to address all these issues	MoWIE Regional Water Bureaus Development Partners and NGOs

Issue	Current Status	Constraints	Proposed Solution	Responsible
WASHCOs/RWBs	▪ WASHCOs/RWBs are taken to be in charge of water supply schemes on behalf of the communities ▪ WASHCOs/RWBs lack the legal status	▪ WASHCOs/RWBs are not registered and therefore operating illegally. ▪ Mandate, roles & responsibilities of WASHCOs/RWBs not defined uniformly across the Country, ▪ Facilitation and remuneration of the WASHCOs/RWBs is lacking. ▪ Community of users lack awareness of how to demand accountability from Water Users Groups ▪ WASHCOs/RWBs do not keep records or books of accounts ▪ WASHCOs/RWBs lack authority and members lack motivation ▪ WASHCOs/RWBs not adequately answerable to the community.	▪ WASHCOs/RWBs be registered, supervised and monitored by the Zone or Woreda in accordance with the Proclamation and regulation. ▪ They will then be legal entities ▪ Work out modalities for formation, operation of the WASHCOs/RWBs as provided for in the Proclamation and regulation ▪ Work out ways of motivating/ remunerating WASHCOs/RWBs, particularly Caretakers	Regional Water Bureaus Zone Water Office Woreda Water Offices
Water Safety Plan and Environmental Concern	▪ Water Safety Plan and Catchment area protection (for all technologies and water resources in general) Monitoring systems i.e. EIAs, environmental audits Land acquisition	▪ There are no criteria for catchment area protection and these are not regulated. ▪ Proper monitoring does not exist. Monitoring related activities are reactive and only carried out when there is an indication that something is wrong. ▪ Land acquisition i.e. for protected springs is practiced; however there are no clear guidelines about the extent of the land acquisition. ▪ Environmental concerns are not mainstreamed and there is no mechanism to do so.	▪ Adaptation of the recently developed water safety plan guideline ▪ Environmental issues should be mainstreamed in water development Best practices should be studied, adjusted and adopted ▪ A monitoring mechanism should be established, preferably under the Woreda WSP Team ▪ Land acquisition should be regulated ▪ Land acquisition should not become a burden for the user community ▪ A utilization plan for the protected areas should be developed	MoWIE Regional Water Bureaus Development Partners and NGOs Various Sector Ministries and Offices like MoANR, MoEFCC
Private Sector	▪ Government promotes use of private sector in service delivery.	▪ Mechanism to support young private sector (Micro and Small Enterprises, Artisans) is lacking Communities	▪ Private sector promotion and encouragement to involve in O&M service should be set up	Regional Water Bureaus

Issue	Current Status	Constraints	Proposed Solution	Responsible
	▪ Private sector in O&M of rural water supply facilities is young and under-capitalized. It comprises manufacturers, suppliers, handpump mechanics, plumbers, and spare parts dealers. ▪ Regional Water Bureaus, Zone and Woreda Water Office do major maintenance by their own minimum allocated budget and human resources and equipment	cannot afford services of private sector in areas of major repairs Mechanism to assure quality works of private sector by communities is lacking Demand/Market for private sector services in maintenance is low	▪ Assist in establishment of private sectors in service provision of O&M for water supply schemes at Region and Zone levels ▪ Establish O&M costs before making the water option choice ▪ Work out the association ideas ▪ Train WASHCOs members in technical aspects Social marketing approach to be followed ▪ Establish a regulatory agency	Zone Water Office Woreda Water Office Micro and Small Enterprises Development Agency Development Partners and NGOs
Monitoring & Evaluation	▪ Inadequate establishment of M&E culture ▪ Low funding of M&E activities Data collection, storage and usage. ▪ Weak follow-up mechanisms	▪ M&E is not institutionalized and only takes place during the implementation phase. There are no clear benefits of M&E activities, this largely is due to the fact that M&E information is not used ▪ There is no established data collection/usage/storage at Woreda or lower levels	▪ There is a need to integrate M&E in all activities undertaken during planning, implementation or O&M ▪ The importance of M&E should be promoted at different levels. ▪ Community based M&E should be enhanced. ▪ Swift action should follow on M&E results/outcomes ▪ A data bank on M&E information need to be established, preferably at Woreda or at all level ▪ M&E, MIS and Reporting manuals developed	MoWIE Regional Water Bureaus Zone Water Office Woreda Water Office
Policy, Legal Framework	▪ Misconception & Contradictions in the policies ▪ Adherence to policies ▪ Local Regulation and by-laws	▪ Lack of awareness of policies, proclamation and Regulations at the Woreda and community levels ▪ Skills and knowledge of process of developing regulations, by-laws ▪ Poor enforcement of by-laws	▪ Develop/amend popular versions of the proclamation for establishment of WASHCOs and Rural Water Boards, ▪ Develop successor legal framework like directives, regulations and by-laws, ▪ Woreda ordinances on O&M User communities should play a key role in	MoWIE Regional Water Bureaus Zone Water Office Woreda Water Office

Issue	Current Status	Constraints	Proposed Solution	Responsible
			developing by laws and the enforcement of them. ▪ Adapt this strategic framework and various manuals to make a solution.	
Training of HPMs/ Plumbers/Caretakers	▪ Training and follow up Remuneration Institutional position	▪ There is no proper institutional arrangement for training HPM /Plumber/technicians. ▪ The training is done by projects which phase out leaving no mechanism for replacing HPM who die/dropout. ▪ There is no technical backup support/refreshing/on-the-job training of HPM by the Woredas. ▪ Trained plumbers are not available in villages and there is no curriculum for training attendants.	▪ Institutionalize the training of HPMs /plumbers/technicians/caretakers including incorporating their curriculum into that of technical institutions. ▪ Recruit borehole maintenance officers or train CWOs to give back up support to HPMs ▪ Design the curriculum for training RPS attendants and recruit a plumber to provide back up support. ▪ Mobilize communities to contribute towards O&M and streamline the modes of payment.	Regional Water Bureaus Zone Water Office Woreda Water Office
O&M Strategies	▪ What is existing and what does work, identify good practices ▪ Identify appropriate structures and systems (alternatives to Community Based Maintenance System (CBMS)) depending on different technologies and different areas ▪ What are the minimum conditions for success of each and how can they be promoted	▪ Currently the CBMS system is the only one established. ▪ For larger water supply systems other mechanisms are in place; however it is not clear whether these are replicable. ▪ There is no social marketing system for O&M	▪ Existing systems should be analyzed with respect to the local context. ▪ A more innovative approach should be developed on O&M structures and systems. ▪ Involvement of existing institutions and structures should be considered, i.e. Woreda and Kebele Water Supply Scheme O&M should be marketed right from the beginning. ▪ Willingness, ability to pay should be established before implementing the water supply. ▪ O&M continuous promotion should be addressed at Woreda and Kebele level	MoWIE Regional Water Bureaus Zone Water Office Woreda Water Office

Issue	Current Status	Constraints	Proposed Solution	Responsible
Equipment/Tool issues	▪ Availability ▪ Affordability ▪ Standardization; equipment, designs /specifications/ choice of materials	▪ Most tools are not locally available in Woredas for the HPM/Plumbers to replace those worn out/lost ▪ Most HPM/Plumbers cannot afford to replace expensive tools because many are inadequately remunerated. ▪ There are different technologies within a Kebele and the HPMs do not have the relevant tool kits for all of them. There is conflict over ownership of the tool between the Kebele and HPMs.	▪ Encourage suppliers/agents to stock tools. (The spare parts supply chain study will recommend appropriate strategies). ▪ Woredas should buy the expensive tools and lend them to the HPM/Plumbers. ▪ Standardize the technologies to minimize the number of tool kits required for repairs for expensive tools like installation equipment, the WASHCOs should buy and own them. ▪ Refer manual developed in this topic for detailed information in this regard.	Regional Water Bureaus Zone Water Office Woreda Water Office
O&M funding Plan	▪ Funding focused on new facilities ▪ Mechanism to be developed to generate funds for O&M ▪ Short/longer term financial plan development ▪ Mode and level of payments	▪ O&M costs are addressed after the water supply is constructed. ▪ Costs related to specific water supply systems are not known ▪ Cost overviews for O&M over a longer period are not made ▪ The currently used fund raising mechanisms leave much to be desired ▪ In nearly all the water supplies the collected O&M fees are not sufficient to cover the real costs ▪ Curative based fund collection should be avoided. The user community should decide during the planning phase how to deal with the mode and level of payment not excluding in kind contributions. ▪ Keeping collected funds up- country is an issue that discourages regularly collection	▪ O&M related issues should be handled/initiated before implementation starts ▪ Financial information on O&M should be collected and disseminated ▪ The user communities should develop and decide the most appropriate fee collection system ▪ O&M fees should be established in relationship with the service level the user community desires. ▪ Banking options of O&M fees should be studied and recommendations formulated ▪ Financial planning for O&M should take place before the construction starts and be integrated to be part of the project cycle. Regular fee collection should be explained to the user community. ▪ Refer Community Managed Project (CMP) and manuals developed along with this for making a solution in this regard.	Regional Water Bureaus Zone Water Office Woreda Water Office

Annex 4: Additional Consideration for Cost Recovery and Financial Management

A. Cost Recovery Strategic Approach:

In the first place the O&M Costs should be identified as:

a) Management (operation) cost,
b) Maintenance cost, and
c) Replacement cost

These in details can be:

1. **Material costs –** consumables, chemicals, energy, tools, spare parts and equipment
2. **Works personnel -** staff related costs involved in operation, maintenance, routine preventive maintenance, repairs, and works for minor rehabilitation
3. **Management personnel -** staff related costs involved in planning, supervision, financial management, administration, water quality control and monitoring
4. **Financial costs** - interest, amortization, depreciation, exchange rate variations, inflation
5. **Environmental costs -** water source protection and water conservation,
6. **Support costs –** training support, technical assistance, institutional strengthening, legalization costs, monitoring and evaluation
7. **Future investment costs** - Major overhauls (rehabilitation), replacement, and extension
8. **Other costs –** transport, services paid to a private contractor, unaccounted for water due to leakage, bad administration and vandalism, possible insurance costs

There are six strategic areas: Revenue generation, Improved Government Funding and Improved development partners' contributions, private sector investments, O&M cost sharing, and financial management.

a) Revenue Generation

- Develop, introduce and enforce guidelines for cost-recovery tariff-setting,
- Establish regulatory agency for setting and regulating tariffs,
- Retain the revenue generated by the water schemes by taxes, tariffs and fees in order to pay incentives and ensure reinvestments,
- Develop and establish subsidy mechanisms for limited subsidies within the sector, taking into account regional disparities and water sub-sectors' ability to generate revenues,
- Design appropriate mechanisms to charge for water extraction and use of water for different purposes,
- Design mechanisms to charge for the provision of O&M services (licensing, permits, water quality testing, service delivery, etc.),
- Improve systems for water revenue collection,
- Develop and implement guidelines for recovering O&M costs,
- Carry out wider awareness campaigns to improve willingness to pay,
- Design and establish a system where Woreda and Kebele will provide matching resources for the support of community-based water supply management.

b) Improved Government Funding

- Prepare, introduce the elaborate 5-year O&M plans aligned with the GTP-II at national and regional levels, accompanied by monitoring and evaluation of outcomes and impacts that will contribute to gradual increase in sophistication and quality of planning and service provision
- Lobby and ensure increased annual Government's share of the O&M budget,
- Prepare an action plan pertaining to flexible O&M funding for the private sector (loans, grants, and micro-financing facilities) to promote development and management of O&M of RWS at all levels.
- Draw up financial plans including cost sharing and cost recovery mechanisms for O&M service delivery options.

c) Improved Development Partner Contributions

- Develop financial modalities which attract and ensure increased development partners' support and contribution to the post construction activities (O&M management),
- Ensure that O&M post construction support is an integral and efficiently implemented part of the One WASH National Program implementation through Consolidated WASH Account,
- Create awareness on rural water supply O&M management among the Government and development partners
- Establish a system where O&M management and post construction support is mandatory part of each water sector project supported by the Government and development partners.

d) Private Sector Investment

- Create an enabling environment for private sector to participate and get involved in the RWS O&M service and local manufacturing of equipment and spare parts,
- Identify, approve and implement feasible models to strengthen private sector involvement in RWS O&M management,
- Create a regulatory framework pertaining to private service provision into RWS O&M management,
- Facilitate and arrange credits from Micro Finance Institutions for private micro and small enterprises to get involved in RWS O&M management.

e) O&M Cost Sharing

The costs for development, regulation, capacity building, monitoring and running rural water supply O&M management service should be shared between the user community and the Woreda. Region should allocate annually budget for the Woreda to execute efficient O&M support. The Maintenance support system needs to demonstrate value for money. This justifies the user communities for cost sharing in O&M management.

- The Ministry of Water, Irrigation and Electricity is to develop the RWS O&M management cost-sharing guideline,
- Communities are to contribute 5 % of the capital cost of water supply construction,
- Communities are to bear agreed costs for operation and maintenance and a part of the cost of the maintenance support service,

- Community's O&M financial management system is to be strengthened to ensure accountability and enhance transparency on the fund flow and use of Government and development partners' funds at all levels,

Regional Water Bureaus, Zone and Woreda Water Offices are to determine the exact contributions to the capital cost and the maintenance support service according to local economic conditions.

This strategic framework recommends the following cost sharing principles:

The costs of maintenance of water supply facilities shall be borne primarily by the users. They will meet costs pertaining to:

(i) Repair and replacements of worn out parts;

(ii) Labour costs of O&M (caretakers, scheme attendants, handpump mechanics, etc.);

(iii) Administrative/ logistical costs such as stationary, public transport, fuel, per-diem etc.

Cost sharing between government and rural user communities shall be agreed on the following but depends on the local situation:

(i) Replacement of hand pumps,

(ii) Provision of spare parts which price is beyond the affordability of the community,

(iii) Fuel cost for those communities getting water supply from motorized schemes but do not have electricity.

The community may require external support from government and development partners to meet the costs beyond their affordability/ability. These may include;

(i) Borehole rehabilitation:

a) De-silting of borehole,

b) Fishing of dropped pump parts (pipes and rods), and

c) Replacement of riser pipes.

(ii) Electro-mechanical systems

d) Maintenance and replacement of pumps (surface and submersible), generators, and switch boards.

(iii) Major extensions of piped systems (RPS);

(iv) Refresher and regular trainings of WASHCOs, caretakers and technicians; and

(v) Monitoring, water quality testing and technical support.

Eventually when the standard of living and income of the community increases and ensures the affordability, the support can be terminated and the cost of all O&M will be the responsibility of the community themselves. This requires development and endorsement of tools and instruments to determine O&M support withdrawal.

B. Financial management Strategic Approach

a) O&M fund mobilization

Different revenue generating measures to support O&M have worked in some communities. Monthly, quarterly or annual collection of flat rate O&M fees appears to be more adapted by most community members than volumetric charge at the pump.

O&M fee mobilisation methods that could be used to complement direct water fee payments vary. These are the examples used for fee collection:

(i) Fixed monthly or annual fee per household,
(ii) Fee per jerrycan,
(iii) Donations and auctions,
(iv) Selling of products,
(v) Woreda contribution,
(vi) Government grants when need arises.

The method(s) selected by a community for collection of water fees should fit to their circumstances, and should be agreed by them at the planning stage.

b) Use and management of user fees

One major challenge affecting user fees is the mismanagement of the funds. This mismanagement may lead to users losing trust in the system and results in stopping the payments. It is therefore important that beneficiaries have confidence in the management of their funds. Handling of funds needs to be done in a transparent way that can be easily understood by the community. The transparency and accountability should be clearly stipulated in the proclamation and WASHCO constitution.

c) Saving of O&M Funds

O&M funds can be saved in different ways depending on the regularity of collection and expenditure, amounts collected, security concerns and ease of access when needed. Where possible communities should open and operate bank accounts. In principle WASHCO should have the right to withdraw funds for O&M whenever it is needed. Regions shall establish robust monitoring of O&M funds use in the region-specific regulations and directives. Only if there is high risk of funds misuse, the region or Woreda can make a directive to permit the O&M funds withdrawal from the WASHCO bank account by the Woreda water office. This directive should be lifted as soon as the transparent practice of O&M fund withdrawal and use has been witnessed.

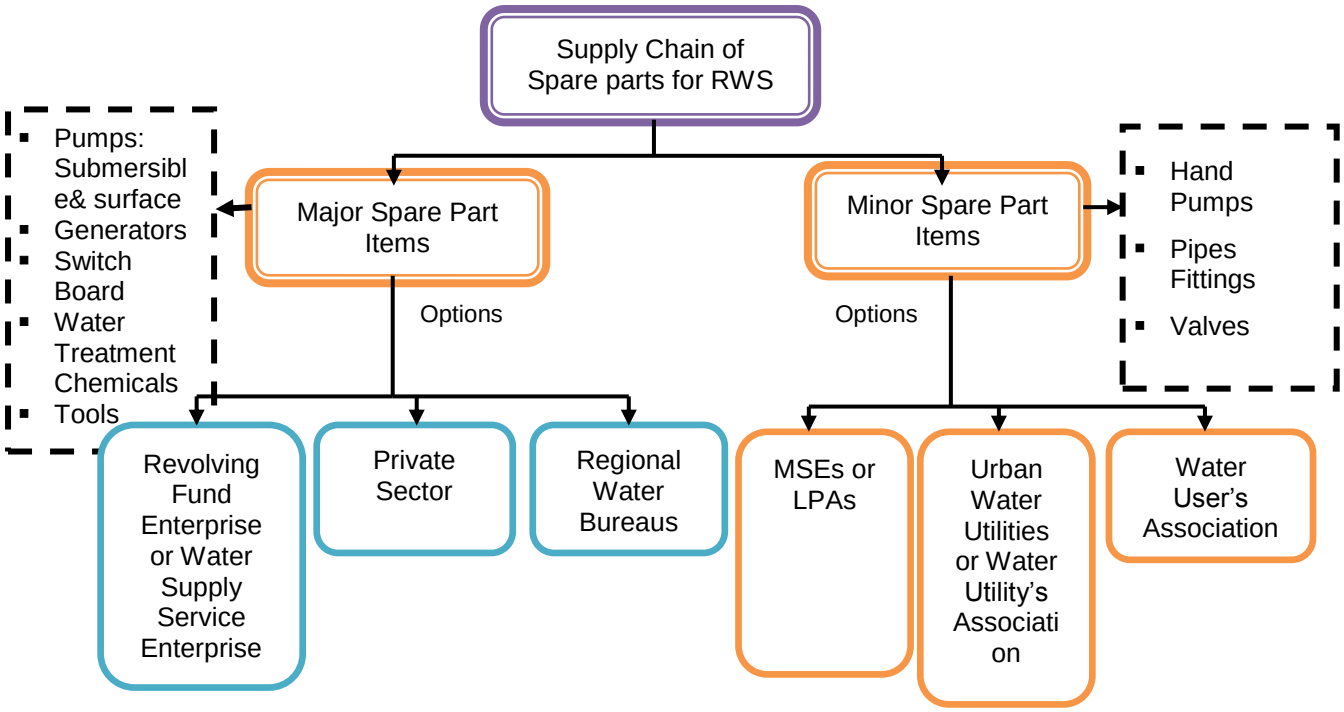
d) Transparency and Accountability

At the planning stage the community should define clear roles for different WASHCO members in financial matters, and establish procedures for carrying out these responsibilities. They should agree on who collects the funds, who keeps and saves the funds, the process for approving payments, who checks records and on what periods, etc. Penalties should be put in place for defaulters and fraudulent acts recognized by the community and Woreda.

Simple records must be kept by each WASHCO of user fees management, including a provision for signing against their payments or through use of receipts. All expenditures should be properly recorded. This information should be shared with users with agreed frequency, or financial records should post in public places for community to see. When a bank account is used the bank statements or saving books should also be shared with users. This allows them to check the records and seek clarifications, as part of their responsibility in financial management.

Woreda Water Offices should regularly check the financial records maintained by the WASHCOs. In case of mistakes or inconsistencies are recognized results should be shared with users for information and action.

Annex 5: Model for Supply Chain of Spare Parts with alternative supply chain models



The supply chain of RWS spare parts can be divided into two components:

i. Major spare part supply & management, and
ii. Minor spare part supply & management

The major spare part supply & management provides three options of service providers. These are:

i. Revolving Fund Enterprise (RFE) or Water Supply Service Enterprise (WSSE),
ii. Private Sector, or
iii. Regional Water Bureaus.

Selection of the model which fit to the regional context is left to each of the Regional States to decide.

The minor spare part supply & management could have three options of service providers to managing it. These are:

i. Micro and Small Enterprises (MSEs) or Local Private Associations (LPAs),
ii. Urban Water Utilities or Urban Utility's Associations, and
iii. Water User's Associations.

Which spare part items are the major ones?

In this strategic O&M framework, major spare parts items are categorized as:

i. Pumps (submersible and surface),

ii. Generator,

iii. Switch board,

iv. Water treatment chemicals and

v. Others.

Since the price of these spare part items are relatively high, it should be provided by Government Enterprise or private sector with good financial capacity. In order to involve private sector, awareness creation and promotion of the opportunity need to be done.

Which spare part items are the minor ones?

These are for: i) hand pumps, ii) fittings, iii) valves, and iv) other small items. These spare part items can be managed either by LPAs/MSEs or Water Utilities or Water Utilities Associations or Water User's Associations.

In the following chapters all possible models for the spare part supply and maintenance service mechanism for rural water supply in Ethiopia are described in brief.

Table 4-1 describes constraints associated with spare part supply chain and its solution, strategic action requires to be taken by various stakeholders.

Table 12: Framework for Improving Spare Part Supply Chain for Rural Water Supply Schemes

Constraint	Solution	Strategic Action Required	By Whom
▪ Inadequate distribution network for spare parts ▪ Poor quality of spare parts ▪ High price of spare parts ▪ Non-uniform availability	▪ Strengthen spare part distribution and support measures: ○ create real demand for spare parts ○ planning by considering preventive maintenance ▪ Establish Revolving Fund Office/Enterprise or Water Supply Service Enterprise or Private Sector for bulk supply of spare parts ▪ Support to private Sector/local service providers; ▪ Impose business rules and performance requirements	**Demand side:** ▪ Ensure preventive maintenance by communities; ▪ Provide water extension support to communities; ▪ Monitor community's affordability and willingness to pay **Supply side:** ▪ Establish Regional Revolving Fund Office/Enterprise or Water Supply Service Enterprise or Private Sector; ▪ Open outlets; ▪ Create market information; ▪ Establish local service providers for spare part retailing and maintenance service ▪ Business support to the LSPs **Regulatory:** ▪ Quality controls and standards; ▪ Monitor RFE and LSPs	WWOs WWOs WWOs Regional Water Bureaus RFE/WSSE/Private sector RFE/WSSE/Private sector RWBs and F/R/W level MSEDAs FeMSEDA, MFI RWBs/RFE MoWIE, RWB RWB/ZWO/WWO

Revolving Fund Enterprise (RFE)

It is a parastatal organization proposed to be established by each of the regional states. The RFE established through the process of issuing proclamation, regulation and directives. This has already been done in Tigray Region where the RFE is to procure spare parts in bulk, and sell them. In addition of the spare part supply the Tigray RFE provide also services which require the use of machines and heavy equipment.

The establishment of RFE by the public sector is to minimise the risks of uncertainties in the demand for spare parts and their business potential.

The initial seed money for RFE can be contributed by the Regional Government, Local Governments, Water Utilities, WASHCOs and Development Partners. The enterprise is managed through the established Revolving Fund Executive Board.

The RFE is given full mandate in managing the supply chain of spare parts and major maintenance services. Spare part outlets should be established at zonal level. The distribution of spare parts can be done through the local (Woreda level) private service providers such as Associations, Enterprises, shops, artisans etc. These entities will be established at Woreda level with the assistance from Woreda Micro and Small Enterprises Development Agency. The private entities as per the spare part demand requirement, purchase spare parts from the zonal stock of the RFE. WASHCOs shall buy spare parts from these entities.

The Regional Water Bureaus are responsible to initiate and lead the establishment of the RFE. At Federal level, the MoWIE is responsible to initiate and support the development of national level manufacturers and suppliers to develop regional distribution networks in partnership with RFEs.

MoWIE and Regional Water Bureaus will initiate and establish the partnership with the Micro Finance Institutes (MFI) to establish credit products for the private sector. Regional Governments together with the Development Partners will provide guarantee funds for the MFIs until the PSAs/MSEs are strong enough for self-financing. It would be necessary to establish requirements for minimum stock and minimum delivery period of stocks at all levels.

Communities through WASHCOs and Water Boards will procure spare parts directly from the Woreda level private sector and the private sector will also assist in the delivery and installation. Woreda Water Office supervise that the spare parts delivered and installations are fulfilling the standard requirements and that the prices charged and paid are following the agreed prices list.

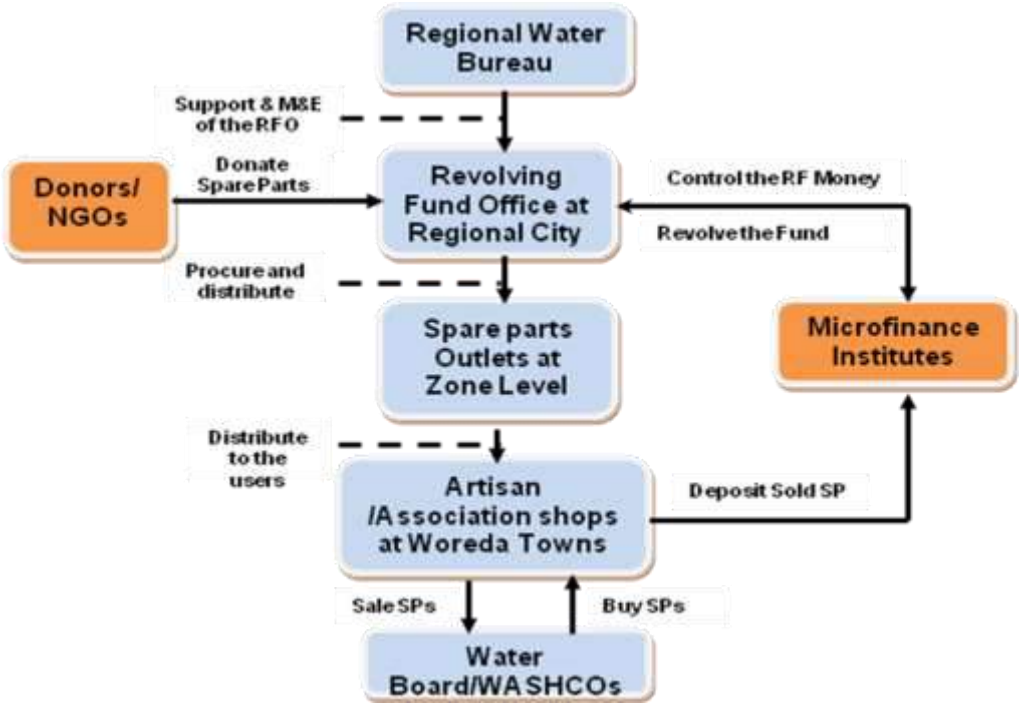
Figure 4-2 below presents the structure of the model Revolving Fund Enterprise. The structure is subjected to modifications based on the local context.

The establishment of RFEs requires plenty of support. The support measures can be divided as follows:

- **Support for demand creation:** Support to demand creation aims to aware the users for the water fee collections and use of that money for spare part procurement and preventive maintenance,
- **Support for private sector involvement/establishment:** Private sector support aims to support the private sector through financial arrangements and capacity building to get involved into the spare part businesses,
- **Support for regulation:** Support to establish required regulatory framework and regulatory institutes aims at improving efficiency and effectiveness of the spare part supply and to ensure the sectors' capacity to identify and address problems related to the spare parts supply, make policy level development, monitoring and decisions, The regulatory measures require the parastatal RFE to impose certain code of conduct that

includes rules of business or performance monitoring in the public interest and may include informal price controls, technical standards and quality control.

Figure 8: Model Structure for Revolving Fund Enterprise



Water Supply Service Enterprise (WSSE) spare part supply model

This is just a synonymous to the Revolving Fund Enterprise except the naming. It has been argued that the revolving fund has already been practised in the past 20 years in Ethiopia through WSSE but it has failed. It has been further argued that the name “funding” could confuse people to understand that it provides “funds” for O&M support. WSSE is also established by issuing proclamation, regulation and directive to procure, supply and distribute spare parts as well as to offer major maintenance service. Minor maintenance will be outsourced to the MSEs/LPAs at Woreda level.

WSSE is managed by executive board which is responsible to regional water bureau. The operational procedures are the same with RFE. Regions can adapt one of the two models based on their own context.

These entities are partially commercial business and accordingly the name should be selected based on the existing laws to be enterprise, agency, authority or corporation.

Private entity spare part supply model

This mode of provision of spare parts is categorized as “no seed spare part supply model”. In this model, it is expected that a private entity procures initial stock of spare parts by its own risk and expenses and starts selling them. This model requires minimal government support to open and operate spare part outlets. The largest expense in establishing spare part outlets is the procurement of initial stock.

In this model the RWB is to convince a candidate private entity that the demand of spare parts exists. Such demand may not be observable, because WASHCOs always contact with water offices when they need spare parts. RWB should estimate the size of demand by referring the number of HPs and explain to the private entity.

Without strong promotion through official channel by RWB, a private entity may not earn enough credibility from ZWMED, WWMEOs, and WASHCOs.

The fundamental limitation of this model is that RWB cannot control a private entity to be operating a SP outlet. At the same time private entity may not open shops at the nearest distance to be accessed by WASHCOs.

Regional Water Bureaus spare part supply model

The existing practice is that Regional Water Bureau is procuring pumps, pipes, generators and other water supply equipment in bulk. But spare part procurement is not carried out in similar manner. This model does not guarantee the regular and timely maintenance of the water supplies and is not sustainable model. But if the other models are not workable, this can be one of the possible interim options to provide spare parts.

This model could lift the recognition of Woreda Water Offices as a responsible organization for water issue, and their knowledge of spare parts and hand pumps. On the other hand Woreda Water Offices do not engage in commercial activities such as stock keeping, selling, recording and re-stocking of spare parts.

This model requires a constant and extensive capacity building at all levels to able government led spare part outlet operations. This model is contradictory to the principle that the spare parts supply should be private sector's responsibility.

Micro and Small Enterprises/Associations spare part supply model

These are the small private entities which can be defined as a group of people working together for financial gain, subject to the limits on numbers of workers and capital. Micro and Small Enterprise can be distinguished by the size of the persons involved and the capital budget as indicated below.

Size: microenterprises from 1 to 10 workers, and small enterprises from 11 to 20 workers

Capital: capital investments - mostly from own savings and informal loans (coming mainly from family and friends) - ranging from ETB 2,000 – 200,000 (microenterprises) and from ETB 100,000 – 1,000,000 for small enterprises. The actual amounts vary according to local economic conditions, and therefore should be understood as examples rather than as an absolute definition.

Associations are small business groups who establish an association to do business together for water-related services. Associations are formed by people working in the same business area such as a) area pump mechanics association, b) plumbers association, c) artisan association or d) traders of water-related technical equipment association, etc.

These entities require seed money for initial spare parts procurement and to open shops or stores at Woreda towns. This demand can be fulfilled through the arrangement and provision of credits from Micro Finance Institutions.

In the long run, this model will take up the provision of spare parts and will offer sustainable technical operation and maintenance support for rural water supply.

The experience in many countries has shown that if the whole spare part supply is trusted for the MSEs or Associations only it could escalate the spare part prices due to the high profit margins. Furthermore the outreach would expand only to the areas where business opportunities are good leaving the most vulnerable out of the scope.

In this strategic framework the MSEs/Associations are required to operate in partnership with the Woreda and RFE. Therefore the MSE/Association shall be a legal entity and it must have license to operate in the water supply sector and be authorized to sell spare parts and/or perform maintenance service of water supplies. Their service will include inspection of the problems, identification of the parts needs and replacement or repair operations including the sales of spare parts.

Urban Water Utility Enterprise/Office spare part supply model

Urban water utilities are established by proclamation to supply potable water to the towns. Utilities do also procure pipes, fittings, valves, water meters etc. in order to provide service to the users. Urban Water Utility model for the rural water supply spare part provision and respective maintenance has been tested in SNNP region and have been encouraging. Big size urban water utilities have financial capacity to procure and sell minor spare part items needed for hand pumps.

If the urban water utility model is selected, it requires amendment of the existing proclamation to mandate the utility to procure and sell rural water supply spare part items and conduct maintenance service. This model might be feasible if utility opens spare part shop at Woreda towns to satisfy the 5 spare part supply sustainability criteria as mentioned above.

This model might require the provision of seed money in small urban utilities as they might have no financial capacity to procure large quantity of spare parts to satisfy the demand.

Urban Water Utility's Association spare part supply model

Urban Water Utility' Associations are currently established at some of the regions like Amhara, Tigray, Oromia and SNNP but their functions are at infant stage. The objective of the associations is to respond problems of the urban water supply utilities with one voice. One of the problems remains to be the provision of spare parts. These regional associations could be very responsive to the problem associated with the spare parts.

This model also requires the provision of seed money for the procurement of spare parts.

Water User's Associations spare part supply model

Water User's Associations are established by proclamation to support the management of the rural water supply schemes by the WASHCOs. In Benishangul – Gumuz region Water User Associations have been established at woreda level and at rural piped scheme level. Some of these associations started to procure and sell spare parts for WASHCOs using the collected capital from WASHCOs fee savings. This model could be a potential means to solve the problem of spare parts.

Monitoring of spare parts supply situation

Provide all stakeholders with information on regional (and national) situation of spares of different pumps, compare with forecasts, and evaluate whether policy measures are working.

Action: Establish spare parts supply monitoring system, including identification of data collection needs, means of collection, procedures for analysing data and reporting format and this should preferably be at the Regional RFE/WSSE level.

Monitoring community affordability and willingness to pay

Develop information systems to keep stakeholders informed on affordability and willingness to pay status of communities. Information is used to facilitate intervention and appropriate timely action when affordability and willingness to pay becomes problematic. The support measures include the following:

- Develop database and conduct baseline survey followed by ongoing monitoring to assess community ability to pay for spare parts at the Woreda level;
- Develop model community budgets supported by Woreda and Regional based collection of price data.

Provide extension services support to communities

Improve the ability of Kebele WASH Team to provide advice and information to communities in WASH in particular on maintenance, financial management and accountability. Encourage preventive maintenance and improve revenue collection and management of funds; Information on where to obtain assistance on repairs, obtaining spare parts etc.

Action: Provide on-going comprehensive extension support services to communities. This activity should be part of the duties of Kebele WASH Office with support from Woreda WASH Office.

Market information

This would improve availability of accurate information and data for use by private sector participants with up to date register of pumps in service, type and age, spare parts availability, source of services.

Action: Establish market information system and conduct special studies to record information on installed handpumps, annual updating of potential minimum demand forecasts based on actual sales and schedule for preventive maintenance, information on consumer attitudes and practices that would affect the demand and supply of spare parts. This activity is better undertaken by WWO with support of projects or other funding agencies.

Annex 6: Detailed about Institutional Support Requirements

What comprises 'institutional support'?

The first step is to recognize that continuous support is required if community management is to deliver sustainable solutions. The second is to determine what that support should entail. Appropriate institutional support comprises the following:

Monitoring: an external agency carries out with certain frequency monitoring such as water quality testing, checking of accounts and general inspection of the water supply status;

Technical advice: on operation and maintenance activities, e.g. support in setting chlorination levels or pump operation. Such advice may be based on results of monitoring visits;

Administrative support: this includes issues such as help in tariff setting and external auditing of accounts;

Organisational support: this includes support for community-based service providers in establishing themselves legally and obtaining status of a legal entity;

Conflict resolution: this includes legal support and moderation between different groups in the community in case of conflicts;

Support to capital maintenance: this includes support to the community in identifying capital maintenance needs and helping identifying sources of funding for such works;

Training and refresher courses: training of WASHCO and Rural Water Board members and water schemes operational staff (plumbers, operators and administrators, etc.);

Provision of information: this goes alongside with training and refresher courses but can also consist of providing manuals, guidelines and other information materials;

Capacity support to service authorities: this includes ensuring that Woreda and Kebele staff have the capacity and resources to help communities to manage contracts, react when systems break down and monitor private sector performance:

Resource mobilisation: this includes pointing communities to possible sources of funding for repairs, materials, or help in accessing materials or spare parts;

What problems constitute to support the Community?

Widespread evidence exists to suggest that after a number of years of operation many rural water supply systems face a variety of problems and obstacles to maintain their services. Some of the problems are:

- Problems with physical infrastructure, such as system breakdown or lack of availability of spare parts,
- Financial problems largely are associated with the failure to pay tariffs or with high operating costs for systems relying on electricity or diesel for pumping,
- Managerial, or organizational problems, such as ignorance to take part in the committee work, corruption, dissolving the committee or the politicization of management committees,
- Health problems caused by the failure to maintain improved hygiene practices, relating to the proper use of water and excreta disposal facilities,
- Environmental problems leading to a reduction in source water quantity or quality..

Only few communities have the resources and capacity to address some of these issues without outside support. Most communities continue to require some form of external assistance if the intended project benefits are to be sustained.

Table 13: Roles and Responsibilities of Various Actors in Supporting the Community

Actors	Roles and Responsibilities
Ministry of Water, Irrigation and Electricity	▪ Development and dissemination of official policies, strategies and guidelines related to O&M, ▪ Revision of policies, strategies and guidelines periodically for post construction support, ▪ Financial and technical assistance support to the Regions, ▪ Capacity building of the Regional States personnel to implement sustainable RWS O&M management, ▪ Establishment and dissemination of norms, manuals and standards related to O&M, ▪ Facilitation of Regional States to avail external assistance in monitoring of O&M performance, ▪ Coordination with other relevant Ministries/Departments and their subordinate offices in matters related to O&M, ▪ Follow up, monitoring and reporting of the implementation of strategic framework of O&M management.
Regional Water Bureaus	▪ Follow up of the implementation of strategic framework action plan of O&M management, ▪ Collect necessary planning data and information for spare part demand and preventive maintenance service, ▪ Identify the support requirements for the rural water supply facilities management based on the local context, ▪ Allocate budget for post construction support, ▪ Monitor the implementation of post construction support, ▪ Coordinate and facilitate external support, ▪ Support the development of the private sector, especially the development of spare part supply & management as well as O&M service delivery, ▪ Conduct capacity building need assessment of woredas, kebeles, WASHCOs and private sector in O&M, ▪ Plan and execute regular and refresher trainings in OO&M.
Zone/Woreda and Kebele Water Offices	Woreda is formally mandated to support community based service provision. The support mechanism include the following roles and responsibilities: ▪ Employment of water extension workers at Kebele level ▪ Development and approval of the plan and budget for O&M management ▪ Regular monitoring visits and contacts with community (frequency depending on the condition of schemes),

Actors	Roles and Responsibilities
	▪ Advice to the WASHCO/Board, organizational support and conflict resolution, ▪ Assistance in calculating and establishing water supply tariffs, ▪ Monitoring and information flow to region level, ▪ Technical advice and specialist service provision ▪ Provision of special tools and equipment, ▪ Data collection and update of the management information system, ▪ Advice on localizing the spare parts provision, ▪ Acting as network/linkage between community and other institutions or agencies, private sector and NGOs ▪ Coordination of O&M development, monitoring, actions and support , ▪ Facilitating water quality testing (including feedback, where necessary, for corrective actions) in coordination with the RWB and Woreda health Office, ▪ Advice on technical and social aspects of system expansion, ▪ Advice on regulation, standards and legal issues, ▪ Regular capacity building of WASHCOs and Boards
Water User's Associations	Community-based water supply service providers establish an association and then provide support to each other or hire a technician to support members of the association.
Urban Water Utilities	In most cases urban water utilities support WASHCOs and Rural Water Boards in their premises by providing technicians, plumbers including tools.
Private Sector	Private sector MSEs/Associations plays role in post-construction support upon an agreement with the local government. Their roles and responsibilities in the provision of O&M support is: ▪ Provision of spare parts and chlorine, ▪ Provision of special tools and equipment for O&M, ▪ Provision of specialist services for system repair and/or upgrading, ▪ Provision of design services for system expansion, ▪ Provision of legal advice and representation, ▪ Water quality monitoring service, ▪ Health promotion at household and community levels, ▪ Advice on fundraising, ▪ Provision of loans and credits for O&M.

Actors	Roles and Responsibilities
NGOs, Civil Society Organizations (CSOs) and Development Partners	NGO and DP support in O&M shall be coordinated by the Water Office. NGO and DP support for O&M can ensure the project based sustainable service of the schemes through post construction support (in terms of O&M financing, tools, equipment, capacity building and establishing and strengthening of WASHCO and Rural Water Boards as well as associations and private sector actors).

Financing

The typical expenses for post construction support may include salaries, mobilization costs, office running and overhead costs, training and capacity building costs and miscellaneous costs:

A number of possible sources for funding O&M management support can be merged from:

Federal Government: The MoWIE through OWNP should allocate the budget for post construction support. Additionally MoH, MoANR, MoEFCC can be also partially the source of O&M funds through the implementation of Water Safety Plan.

Regional States: Regional Water Bureaus shall allocate regular budget for post construction support to Zones and Woreda Water Offices.

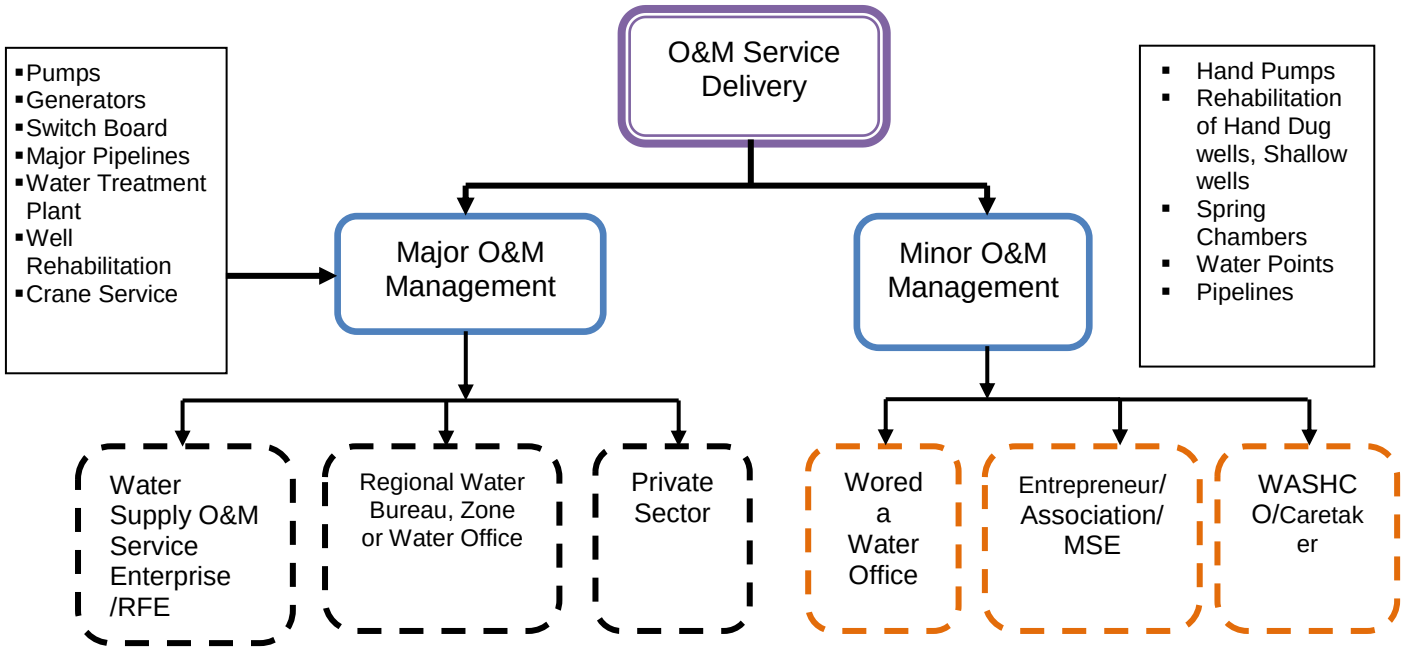
Zone and Woreda Offices: Zone and Woreda authorities allocate funds either from the regional states and/or raised locally through taxation for the provision of O&M support as part of their mandate and responsibility.

Development Partners and NGOs: DPs and NGOs are also sources for O&M funds. Typically their support is project based and limited for a certain time period. Their support should be channelled for the capacity building of the O&M support institutions instead of a direct technical O&M support.

User Associations: User Association funds are raised directly from individual households and communities benefiting from services and will serve the schemes they represent.

Annex 7: Alternative Models for O&M Service Delivery of Rural Water Supply

Figure 8: Operation and Maintenance Service



As indicated in above Figure, the operation and maintenance service divided in to two: i) Major O&M and ii) Minor O&M Management.

1. **What comprises for Major Operation and Maintenance?**

   Major O&M is mainly associated with motorized schemes where water supply system is operated with either submersible or/and surface pumps, with electricity system or diesel fitted with generator. The definition refers to such a system could not be able to be maintained by community. The system of maintenance requires carne and related tools and equipment. Thus, it can be maintained either by Water Supply Service Enterprise or Revolving Fund Enterprise, or by Regional Water Bureaus/Zone or Woreda Water Office, or by Private Sector. Regions can select the model that can fit to their context.

2. **What comprise for Minor Operation & Maintenance?**

   Minor O&M is mainly associated with point water sources such as hand dug well; shallow wells fitted with hand pumps as well as on-spot spring, gravity system water supply. Such kinds of rural water supply schemes can be operated and maintained mostly by the community (caretaker). If the maintenance is beyond caretakers' capacity, Woreda or private association or enterprise (MSE) can maintain the scheme by catchment division system. The choice of the O&M Service Delivery Model (SDM) depends on the local situation.

Annex 8: Additional Information on Monitoring, MIS, Reporting and Documentation

Ways of Monitoring

The alternative monitoring procedures that can be adapted to each woreda situation are as follows:

a) Direct community visits

- Woreda Water Offices visit every community at least once in a six month to provide extension service and to monitor community compliance with preventive maintenance procedures, mobilization of adequate funds and management of O&M funds.

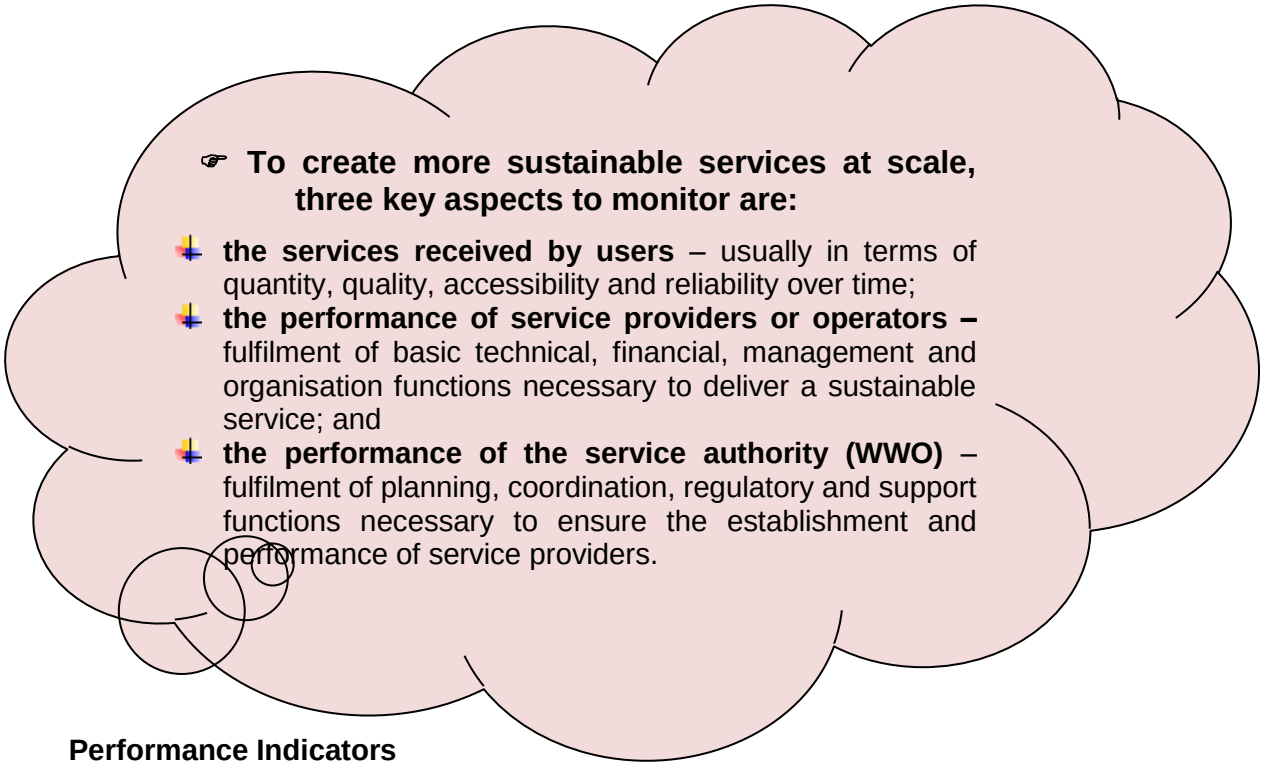
b) Indirect monitoring

- **Periodic meetings:** WWOs organizes periodic meetings of representatives of all the communities (include caretakers) at least once every quarter at the level of the kebele. The meetings should accomplish the following:
  - Provide extension services to communities on O&M management, funds mobilization and management;
  - Disseminate and exchange information and experiences;
  - Gather information from individual communities on status of systems and other related problems encountered.
  - The findings from these general meetings would then be used to programmed community visits to provide specific support requirements.
- **Local Service Providers:** Request local service providers to provide periodic returns on the work they undertake at the community level to the Woreda, and this should include repair work undertaken, condition of pump and other related information from the communities they visit.

Monitoring and Reporting

This is a crucial function to be undertaken regularly at all levels in order that proper track is kept of the performance of the sector and actual achievements made. Findings of monitoring are relevant for realistic planning and timely remedial action. The assessment revealed that at present some monitoring is carried out at Regional and Woreda levels, but this is not adequately coordinated. The database management at WWO does not at present adequately fulfil the role of streamlining, collecting and organising social and technical data from all levels for meaningful use.

Box 3: Key Aspects to Monitor RWS System



Performance Indicators

Effective evaluation of the status of operation and maintenance depends primarily on the ability to measure current performance. This can be achieved using indicators and targets for the performance of different functions.

The following core performance indicators can be applied:

1. *Operational Performance Indicators:* (e.g. working schemes, revenue collection efficiency, stock availability, and water consumption based on GTP-2 targets,);
2. *Financial performance indicators:* (e.g. basic O&M cost recovery, Cash balance, late payment);
3. *Management performance indicators:* (e.g. Financial Accountability, Accountability "Up" to Woreda Water Office, Accountability "Down" to Community; Formation of WASHCO, Efficiency of management of the WASHCO, Efficiency of Regular meetings of the WASHCO, etc);
4. *Maintenance Performance indicators:* (e.g. Maintenance costs as a % of total operating costs, Preventive maintenance costs as a % of total maintenance costs etc);
5. *Environnemental performance:* (e.g. water quality, etc.)

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